PAPER TRADE JOURNAL

OCTOBER 23, 1941

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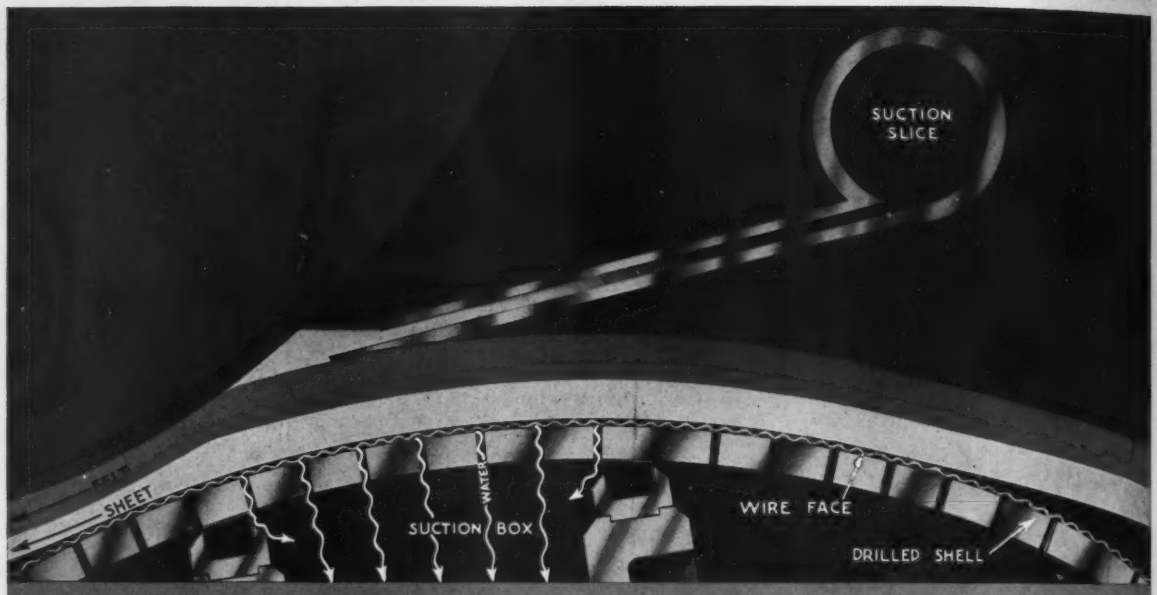
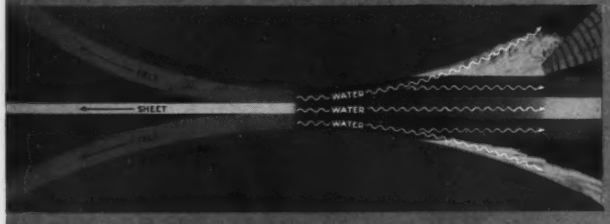
DOWNINGTOWN

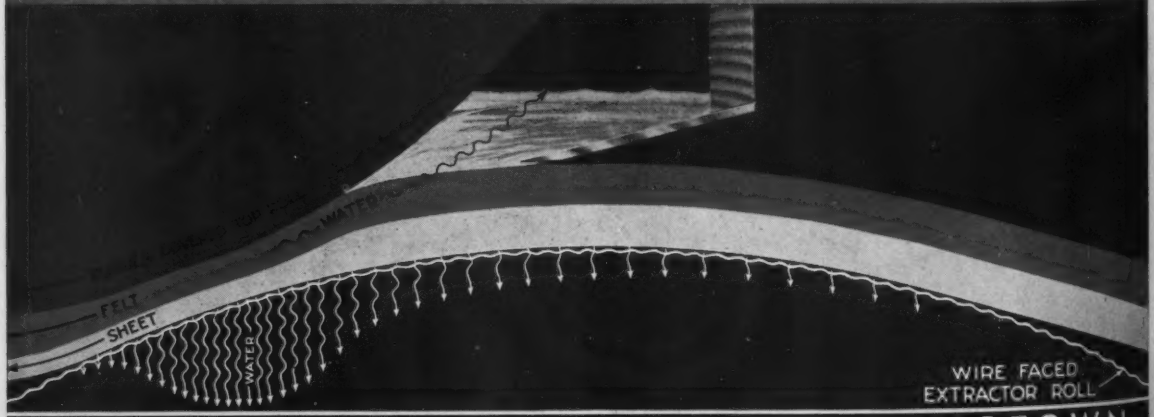


OLD VS NEW



HORIZONTAL VS. VERTICAL WATER REMOVAL WITH SUCTION-EXTRACTOR AND PLAIN EXTRACTOR

Illustration at left shows the "old" type of press with the rolls, sheet and felts travelling in machine direction and with the water alone being forced back in the opposite direction horizontally through the oncoming sheet and felts. This causes a heavy back pressure which tends to disrupt formation and causes checking, crushing or blowing in the presses. . . . Vertical Water Removal by means of the "modern" Downingtown Suction-Extractor (above) and the "modern" Downingtown Plain Extractor (below) eliminates this horizontal back pressure. Water is removed vertically downward through the rolls and upward through the felt thereby keeping the latter clean and open. Write for Bulletins 119 and 122 describing the Downingtown Plain Extractor and Suction-Extractor. The Downingtown Manufacturing Company, Downingtown, Penna.



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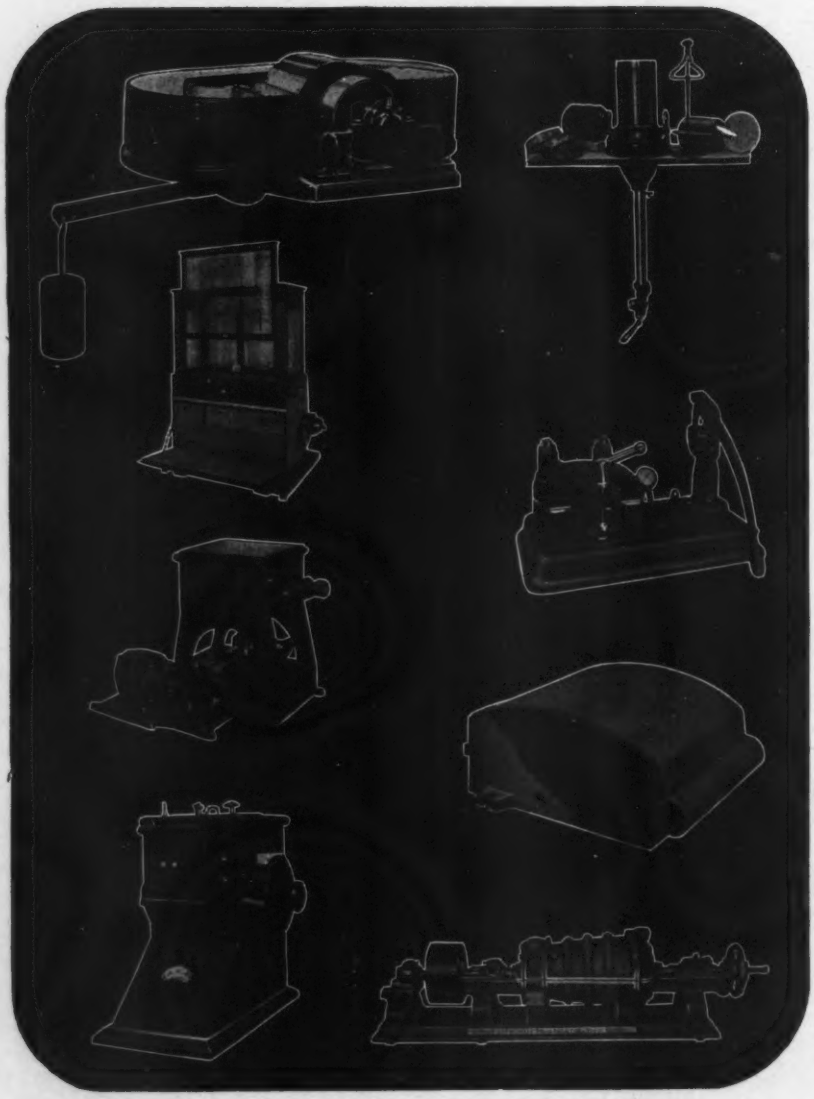

Illustration above shows (left to right) pictures of the Beater, Sheet Mould, Weighing Oven, Hydraulic Press, Flat Screen, Hot Plate, Size Tester, Jordan. Other items include Washer Cylinder, Couch Rolls, Screens, Clay Abrasion Tester.

You must get along with less chlorine . . . formaldehyde is hard to obtain . . . pulp quality is changing . . . substitutes must be used . . . compromises must be made.

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PAPER TRADE JOURNAL
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Vol. 113, No. 17 Thursday, October 23, 1941 Price Ten Cents

Printing Committee Requests Paper Bids

Proposals For the Semi-Annual Supply of Paper For Government Printing Office Will Be Opened November 24 — Bids Asked On 94,200,000 Pounds of Various Kinds of Paper — Changes Made.

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 22, 1941—Joint Congressional Committee on Printing has announced that it will receive bids on November 24 for a six months supply of paper for the use of the Government Printing Office for the term beginning January 1. Bids are being asked for approximately 94,200,000 pounds for the period compared with 57,104,000 for which bids were taken in May for the present contract period.

The Committee is asking for the following quantities of various grades of paper;

3,000,000 pounds newsprint paper.
7,080,000 pounds machine-finish book paper.
500,000 pounds antique book paper.
2,500,000 pounds off-set book paper.
80,000 pounds lightweight machine-finish book paper.
380,000 pounds 50% rag antique book paper.
20,000 pounds 75% rag laid antique book paper.
40,000 pounds 100% rag antique book paper.
6,500,000 pounds supercalendered book paper.
2,000,000 pounds machine-coated book paper.
2,530,000 pounds coated book paper.
60,000 pounds lithograph paper.
5,950.000 pounds mimeograph paper.
500,000 pounds U S M O safety writing paper.
5,000 pounds U S M O writing paper.
4,000 pounds safety writing paper.
18,350,000 pounds writing paper.
2,360,000 pounds map paper.
2,705,000 pounds manifold paper.
15,921,000 pounds bond paper.
3,305,000 pounds ledger paper.
2,420,000 pounds index paper.
4,000 pounds tissue paper.
1,060.000 pounds cover paper.
690,000 pounds manila paper.
2,015,000 pounds kraft paper.
4.000 pounds paraffin paper.
600,000 sheets gummed paper.
317,000 pounds blotting paper.
60,000 pounds oiled manila tympan paper.
10,000 pounds plate-wiping paper.
6,000 pounds back-lining paper, for case making.
20,000 pounds high finish red sulphite.
180,000 pounds manila tag board.
1,450,000 pounds calendered tag board.
80,000 pounds manila cardboard.
760,000 sheets railroad board.
1,140,000 pounds bristol board.
7,500,000 pounds United States postal card bristol board.
60,000 sheets pressboard.
1,000,000 pounds news board.
1,025,000 pounds chip and strawboard.
25,000 pounds marble-grained board.
60,000 pounds box board.
1,150,000 pounds binder's board.

In cases where more than 1,000 reams are called for proposals will be received for 1,000 reams or more.

Due to the present emergency some changes have been made in the specifications.

Following is the report of the Committee on Paper Specifications to the Joint Congressional Committee on Printing which have been accepted by the latter;

The Committee on Paper Specifications respectfully submits its Forty-second Report and the accompanying recommended schedule for paper for the public printing and binding and blank paper for the use of the Government departments and establishments in the District of Columbia for the term of 6 months, beginning January 1, 1942.

The Committee has revised paragraph 63 of the Instructions under the heading "Pick Test" so as to more clearly define the test procedure.

Paragraph 65 of the Instructions under the heading "Packaging" was revised to permit a clearance of 9½ inches under each skid instead of 9 inches and to specify that calendered tag be shipped in the same manner as newsprint, that is, newsprint and calendered tag rolls must not be shipped on their sides.

In the interest of conserving bleached pulp to meet the requirements of National Defense, unbleached pulp not exceeding 25 per cent is permitted in Lots 3-14, 18, 20 and 21, 22, 23, 34-38, 41, 44-46, 54-63, 70-73, 197, 251, 252, and 325-327.

(Continued on page 22)

News of the Wisconsin Paper Industry

Thilmany Pulp & Paper Co. Announces Wage Increase of 3 Cents Per Hour—Work On 33,000 Volt Power Transmission Line Starts —Paper Men Elected To Traffic Club—Other Industrial News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., October 20, 1941—Wage increases of three cents per hour retroactive to October 1 were announced last week by the Thilmany Pulp and Paper Company, Kaukauna, Wis., through L. C. Smith, personnel director. The increase establishes a starting rate of 48 cents per hour and a base rate of 54 cents for women. The men's starting rate is 57 cents, and the base rate is now 63 cents per hour.

In recognition of their outstanding record in operations totalling 110,430 miles for the year ending June 30, 1941, truck drivers of the Thilmany Pulp and Paper Company, Kaukauna, Wis., were tendered a dinner and theater party last week. They were presented by L. C. Smith, Personnel director, and W. C. Hess, foreman of the trucking crew, with a bronze plaque received from the National Safety Council for winning first place in the national contest, with not a single accident recorded. Awards for one, two and four year records without accidents were given several of the drivers by the Employers Mutual Liability Insurance Company of Wausau, Wis.

Displays Toilet Roll Wrapping Machine

During the fall convention of the Northwest division of the American Pulp and Paper Mill Superintendents Association at Green Bay, Wis., Friday and Saturday, October 10 and 11, the Lawton Company, De Pere, Wis., had on display its new machine known as the Lawtomatic Roll Wrapper. It was set up at the Northland hotel, with Larry Vincent, sales manager, demonstrating it.

The machine, taking up little more floor space than an office desk, turned out toilet tissue wrapped, sealed and ready for packing at the rate of 34 rolls per minute. The mechanism can be utilized for any paper product that has a round, hollow core.

Only machines for wrapping toilet paper and towels have been produced thus far, in senior and junior models of varying production speeds. Since production started January 1, twenty units have been placed in service.

The machine is the invention of A. W. Witbro of Green Bay, who developed it in 1940 in the Lawton shops.

Rudolph Lotz Appointed

Rudolph Lotz of the Kimberly-Clark Corporation, has been appointed executive chairman of the U. S. defense savings staff committee for Neenah, Wis. Mr. Lotz also is president of the Neenah Chamber of Commerce. He will head an educational campaign soon to be started to develop a widespread sale of defense bonds and stamps. F. J. Sensenbrenner, president of Kimberly-Clark, is a member of the Wisconsin committee-at-large.

Work on New Power Line Starts

Construction has been started by the Wisconsin Michigan Power Company on a 33,000-volt transmission line along Third Street in Menasha, Wis. The project will cost about $32,000. It will be completed within about eight weeks, and will be an addition to two other high tension circuits now serving the paper mills and allied plants of Menasha and Neenah, Wis., bringing in power from the company's main power plant at Appleton, Wis. Steel towers are being used along the waterways, some of them set out away from the shore. A former transmission line which was considered unsafe will be dismantled.

Paper Men Elected Officials

Franklin Otis of the Gilbert Paper Company, Menasha, Wis., and Hollis Whitman of the Thilmany Pulp and Paper Company, Kaukauna, Wis., were elected vice-presidents of the Fox River Valley Traffic Club at a meeting of the executive committee at Conway hotel, Appleton, Wis., Tuesday evening, October 14. Carl Springborn of Royal Transit, Inc., Oshkosh, Wis., was elected president, succeeding Arthur Schroeder of Oshkosh. Walter Gresens of the Tuttle Press Company, Appleton, Wis, is a member of the executive committee. The club expects to hold its annual dinner in November.

Floor at Central Paper Co. Falls

Collapse of a second story floor at the Central Paper Company, Menasha, Wis., narrowly missed death or injury to seven employees of the Fluor Brothers Construction Company of Oshkosh, Wis. The accident occurred Friday afternoon, October 17, when the men were pouring concrete for the installation of a new paper gumming machine.

It is believed that excavation for the foundation of the machine weakened the steel girder supports. One of the workmen noticed that the floor was sagging, and warned the others, who dove to safety as the floor caved in, carrying with it 80 tons of glue powder stored in the building. Henry Lynaugh suffered a shoulder injury, and Ole Knutson was treated for minor contusions and abrasions. The others were unhurt.

Several water pipes were broken and the automatic fire sprinkler system was set off.

Blanket Rating in Effect

The American Paper and Pulp Association, E. W. Tinker, executive secretary, 122 East 42nd street, New York, has announced that the paper and pulp industry, together with all industries, has been given an A-10 rating.

This action, in effect October 16, 1941, covers materials for maintenance and repairs. This order makes it unnecessary for concerns to make applications on Form PD-1, unless the required material is not included in the order, or the A-10 rating is not sufficient to effect delivery of the needed materials.

This order applies to manufacturers, processors, fabricators, and to the maintenance of warehouses.

"Take a bolt of lightning to all offices, Miss Smith"

Streaking across the miles with lightning speed, a teletyped message appears *in typewritten form* in one or many connected offices or plants almost instantaneously.

Today, it may be a message locating or routing vital Defense materials . . . expediting the production of Army or Navy supplies or equipment . . . helping chart the weather for military or commercial air fleets.

For the teletype and telephone are on the job for Uncle Sam. America's communications are ready for the Big Job.

BELL SYSTEM TELETYPEWRITER SERVICE

"Old Timers" Attend Kalamazoo Meeting

At Least Twenty-Five Who Have Spent From Three To Five Decades In the Industry Present At Banquet In Park American—Barney Benson and Lew Breyfogle Honor Guests—Those Present.

KALAMAZOO, Mich., October 17, 1941—The October meeting of the Michigan Division of the Superintendents Association held at the Park American Hotel on Thursday evening the 16 was properly termed "Old Timers Night", there being at least twenty-five present who have spent from 3 to 5 decades in the industry. The new chairman Henry Nendorf opened the meeting expressing his pleasure with the attendance which was slightly over 100. He appointed his different committees to serve during the ensuing year, and announced that the feature of the November meeting would be a discussion on Felts.

C. "Baldy" Smith Presides

The meeting was then turned over to C. "Baldy" Smith the toastmaster who proceeded to run off the program. Ray L. Barton was introduced and to him was assigned the honor of giving a life history of Barney Benson one of the two guests of honor. Barney's activities in the industry were recounted in detail. In conclusion he was presented with a certificate of Life Membership in the association as a tribute to his fifty years of service. To Grover Keeth first vice president of the association was assigned the pleasant duty of reviewing the fifty years Lew Breyfogle has spent in the industry also concluding with a presentation of a Life membership to Mr. Breyfogle. Lew responded with a short talk that was a knockout. John Cornell associate editor of *The Paper Mill News* presented a life subscription to each of the two above mentioned members.

At the Speakers' Table

The following men seated at the Old Timers and speakers tables were called upon and each paid tribute to the two honored members, Fred Boyce, Roy Kelly, E. T. A. Coughlin, all past National Presidents; R. L. Eminger national secretary; L. W. Sutherland, Clem Sisson, A. W. Cole, Abe Vandenberg, Chas. Noble, F. B. Eilers, Jacob Parent, W. B. Clements, Homer Stafford, Chas. B. Hays, and George Rice.

Olin Callaghan Introduces Fred Boyce

Olin W. Callaghan then introduced Fred Boyce "Daddy" of the association and Confucius of the Ancient Order at Chinese Paper Makers—Mr. Boyce explained the inception of the ancient order and presented certificates to three of the original eight members present at the meeting, Roy Kelly, Lew Breyfogle and Chas. Noble.

A number of congratulatory telegrams from friends of Barney and Lew were read by the toast master.

Several rolls of colored films taken by "Spike" Kelly at the Poland Springs convention, shots from Montreal, Quebec, Ottawa, and a portion of the last game of the world series were run off for the entertainment of the party. As a fitting climax Barney Benson addressed the members and guests in both a grave and humorous vein as only Barney can.

Those in Attendance

Among those who attended the meeting were the following:—

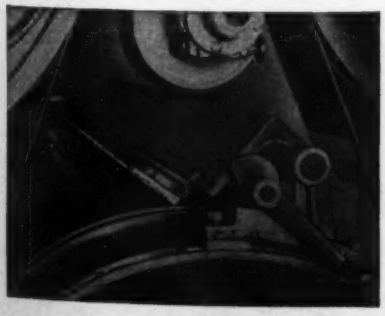
Ralph Atkins, Lee Paper Company; R. C. Alden and Percy Abbott, Watervliet Paper Company; W. H. Astle, Michigan Paper Company; E. H. Barnes, Michigan Carton Company; L. H. Breyfogle, Draper Brothers; Fred C. Boyce and Ray L. Barton, Michigan Paper Company; Barney Benson, Williams Gray Company; R. R. Buss, Hercules Powder Company; Jacob Boodt, Kalamazoo Paper Company; N. J. Berger, Armstrong Machine Works; W. P. Burleigh, Bird Machine Company; W. F. Costello, Longhead Company; G. V. Cathey, B. F. Goodrich Company; A. W. Cole, Rex Paper Company; John Chittenden, Michigan Alkali Company; W. B. Clements and John Cornell, *Paper Mill News;* C. H. Champion, R. T. Vanderbilt Company; O. W. Callighan, Edgar Brothers; E. T. A. Coughlin and Wayne E. Crotty, Bryant Paper Company; A. A. Coffin, Titanum Pigment Corporation; N. J. Corvie, Hawthorne Paper Company; Paul de Greehery, Michigan Paper Company; Jack Dickson, R. T. Vanderbilt Company; F. B. Eillers, Orr Felts and Blanket Company; J. J. Ely, Peninsular Paper Company; R. L. Eminger National Secretary; Donald Edgar, Harry Eliason, Johaneson Wales & Sparr, Inc.

F. Fischer, Bryant Paper Company; James Foxgrover, Hercules Powder Company; James F. Fielding and M. S. Fogerty, Michigan Paper Company; L. E. Fitzgerald, Hercules Powder Company; H. B. Gerber and L. L. Griffiths, Jr., Williams, Gray Company; Chas. Gardner, Lee Paper Company; John D. Henderson, Fritz Publications, Arthur Hanson, American Box Board Company; G. C. Hendricks, Michigan Alkali Company; Chas. B. Hays, Watervliet Paper Company; A. E. Hays, Michigan Paper Company; D. P. Hatch, Socony Vacuum Company; David A. Howard, Howard-Smith Paper Company; Fred Hodgemire, Hawthorne Paper Company; W. B. Hadley, Sutherland Paper Company; O. B. Johnson, Johnson Rubber Company; R. E. Krudener, Pulp Sales Corporation; Grover Keeth and Roy Kelly, Marathon Paper Mills; W. A. "Spike" Kelly, E. D. Jones Sons Company; L. H. La Liberte, K. V. P.; Jos. Longhead, Longhead Company; L. H. Mimms, Kalamazoo Paper Company; John S. Miller and George J. Maye, Appleton Wire Works; J. W. McClaran, National Starch Products Company; C. J. McMahon, Appleton Felts; C. H. Noble, A. E. Staley Manufacturing Company; C. H. Noble, Jr. and Henry Nendorf, Rex Paper Company.

Jake Parent, Noble Wood Company; Al Perlick, K. V. P.; H. C. Pearson, Pioneer Paper Stock Company; D. T. Quirk, Peninsular Paper Company; Henry Reeves, Jr., Hercules Powder Company; Geo. H. Rice, K. V. P.; John Roslund, Asten-Hill Manufacturing Company; J. B. Ramage, Waterbury Felts; John L. Russel, Bryant Paper Company; L. W.

Better get the Right Doctor for the Job!

If you want continuously healthy results from any or every roll on your paper machine, any old doctor won't do. You've got to have the right doctor for the particular roll and the particular service required of it . . . That's why every Vickery Doctor is engineered expressly for the roll on which it is to be placed . . . And that's why it pays to specify and standardize on Vickery Doctors exclusively . . . Let us prove it. Ask us to show you the doctor layout we'd recommend for any given roll in your mill.



BIRD MACHINE COMPANY
SOUTH WALPOLE — MASSACHUSETTS

VICKERY DOCTORS

Sutherland, President Sutherland Paper Company; C. F. Sisson, Mac Sim Bar Paper Company; Wm. Shaw, Michigan Carton Company; Homer E. Stafford and C. B. "Baldy" Smith, Huron Starch Company; Glen Sutton, Sutherland Paper Company; R. H. Smith, Bryant Paper Company; W. L. Shaw, Heller & Merz; Geo. Stummer, American Wire Cloth Company; F. K. Shankweiller, Hercules Powder Company; Al Sherwood, Sutherland Paper Company; Carl W. Swanson, Allied Paper Company; R. B. Stewart, K. V. P.; H. E. Stratton, PAPER TRADE JOURNAL; Robert Short, Longhead Company; Joe Scheurmann, Cameron Machine Company; Harrison Starr, Price & Pierce; P. A. Talbot, Harry J. Toole, Abe Vandenberg and James R. Verdon, American Cyanamid Corporation; William Wessel, American Box Board Company; J. C. Wedemeyer, Allied Paper Company; Joe Waber, Rex Paper Company; Arnold Weller, Sutherland Paper Company; Fred Weirich, Sutherland Paper Company; Walter Wolfe, Mac Sim Bar Company; Earl Wingard, Gazette and James A. Wise, Kalamazoo Paper Company.

Philadelphia Paper Men Play Golf

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., October 20, 1941—The Philadelphia Paper and Cordage Association held the final of its 1941 golf tournaments on October 7 at Pine Valley Golf Club, Clementon, N. J. It was the largest paper trade tournament in the history of the association, having a record attendance of eighty-five players.

The feature contestants were the 12 players from New York who played 12 of the Philadelphia association's best, to decide the championship between these two great cities. This was a hard fought contest and was won by the Philadelphians. The New York Team was represented by A. S. Walden, captain; J. Dolan, R. Lawrence, L. Coffey, S. Lopin, H. Fantell, F. J. Courtney and R. N. Courtney, while Philadelphia had as its representatives George Hoffner, captain; G. R. Phelps, E. H. Weihenmeyer, S. B. DeFarges, H. Bancroft, W. S. Culverhouse, J. D. Clark, W. T. Clark. The Clark boys by the way are twins and as an example of their consistency, both won their matches.

With ideal weather and the course in excellent condition, but however excellent this course, which was described by the host, Edwin Weihenmeyer, Jr., as a rolling ocean of sand with the fairway a small strip of beautiful green carpet running across the heaving waves to a delightful green island, which would be a quick jump if one could stay on the carpet, proved to be just as difficult as in the past to make outstanding scores.

Finals for the Jessup & Moore Company's trophy Buffalo Envelope Company's trophy, Fred Brower Trophy and Beveridge Paper Company's trophy were scheduled but just before the players teed off it was announced that the Fred Brower trophy would be held over until the first tournament of 1942.

Prizes were awarded for low gross, low net, kickers handicap, hole-in-one contest, putting contest, highest score on any one hole, highest score for the full 18 holes and for the most birdies. Low gross was won by J. Dolan, Number One man of the New York team; incidently this was the first time Mr. Dolan played this course, his score was 80. Low net was won by G. R. Phelps of the J. L. N. Smythe Company. Kickers handicap was tied by T. W. Monteith of J. E. Fricke Company and Baron Clark of The American Manufacturing Company. The hole-in-one contest was won by R. N. Courtney of the New York team. R. Tabor of United States Envelope Company was the winner of the prize for the highest score for the full 18 holes, but he prefers not to have us mention his score.

Besides the eighty-five players a goodly number of non-players repaired to Silver Lake Inn where they all enjoyed a delicious dinner and also the repartee of Everett Hoffman of J. E. Fricke Company, who officiated as master of ceremonies. With much banter around the festive board by president Jack Shinners, the winning contestants were awarded some very worthwhile prizes, including a soda king, a cocktail shaker, silver service, camp grill, etc. President Shinners paid a very eloquent tribute to E. L. Richards, chairman of the golf committee for the diligent and successful efforts of himself and his committee.

Indianapolis Demand Strong

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., October 20, 1941—Paper demand continued strong in this territory last week and indications are that a strong market can be expected for most lines until after the first of the year at least. The only fly in the ointment is increasing difficulty in securing deliveries and this situation promises to become more acute as the weeks pass on. Prices, naturally, are strong, but every effort is being made locally to prevent them from skyrocketing out of reason.

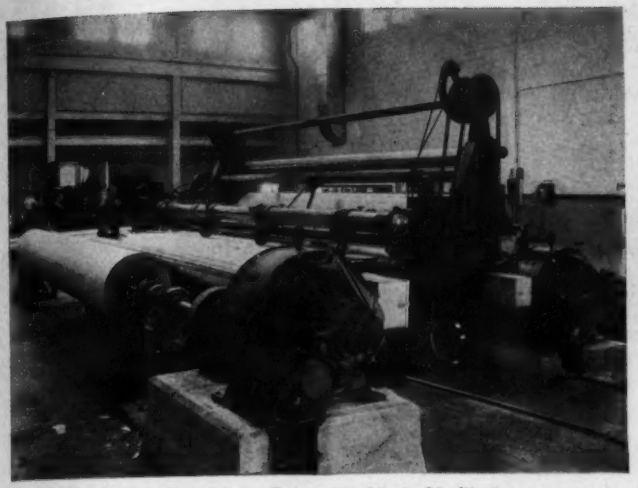
With the threat of government curtailment of construction not actually needed in the defense program, the building paper and roofing situation was badly mixed here last week. There is sufficient construction now under way to account for all present stocks and then some, but any curtailment on the part of the government would work an almost immediate hardship in this field. Dealers last week became more wary in their buying, but prices remained firm to strong. Stocks in retail hands are very low and some buying will be done to balance and replenish stocks, even if new construction is curtailed at once.

Fine paper demand continued good with local printers having plenty of backlog orders and indications are that business will hold good until after the holidays. All prices were firm to strong.

Box demand continued heavy and the demand base appears to be widening with the approach of the holiday season. Boxes now are being sold especially for the Christmas season and the demand will increase from this time on. Most central Indiana factories are working virtually to capacity but there is some shortage of raw materials being reported.

Wrapping paper and bags continued in good demand. Retailers are ordering much heavier than they did a year ago. Tissues also were moving nicely.

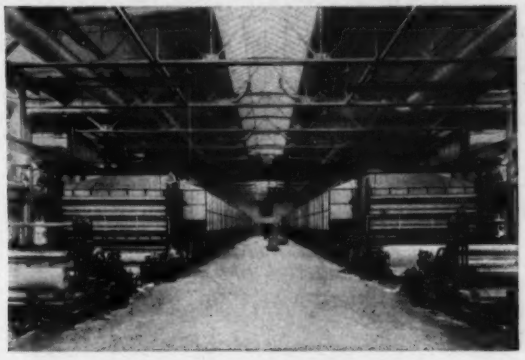
Demand for the lower grades of waste paper was heavy last week with prices at the ceiling agreed on. There is some confusion in the market, but it is believed this will be unraveled shortly. Both new and old rags were in demand with new rags showing a fractional increase. Roofing rags appeared also to be in some demand.



FLOWING POWER—*the 98.6% efficient "Baldwin kind" of power means smooth operation of finishing machinery—and a higher quality product.*

IN THE CHIP ROOM *and for conveyor drives throughout your plant, Baldwin roller chain belts can help you save power and repair bills!*

FOR BETTER PAPER *Baldwin roller chain belts on roll drives bring the smooth flow of power so necessary for a "flaw-free" product.*



STOP!

Before You Rechain,

THINK OF TOMORROW!

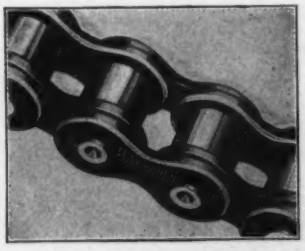
● Tomorrow . . . who knows the difficulty you'll face in obtaining drive replacements promptly, and especially, at today's prices? The facts all point to successfully "tighter" delivery situations, with a corresponding rise in prices of all "heavy equipment" goods.

Protect yourself against future replacement problems! Forget "just as good" drives, with their accompanying early replacement requirements! Buy Baldwin *roller* chain belts for drives from log haul to barking room to finishing machinery!

Then you'll be ready to go through the years to come with drives that are 98.6% efficient all the time! Then you'll be *free* from early replacement worries—thanks to built-in Baldwin durability!

Please Note

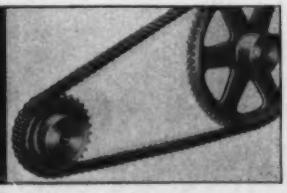
Whether in relation to a defense problem or a commercial application, your inquiry will receive prompt attention. However, delivery of Baldwin products for the latter must be subordinate to the delivery of orders bearing priority distinction.



WANT QUIET, POSITIVE POWER? TRY BALDWIN CHAIN BELTS

No drive is so positive and yet so quiet and economical as a roller chain belt. Baldwin has exceptional experience in the design, manufacture and application of roller chain belts in all standard and specialized drives and conveyors. Take advantage of this background—call the Baldwin man!

BALDWIN CHAIN BELTS



Please address inquiries to:

BALDWIN-DUCKWORTH

Division of Chain Belt Company

339 Plainfield Street, Springfield, Mass.

Factories at Springfield and Worcester, Mass.

Glatfelter Co. Wins National Safety Award

For having the best record among a group of paper mills in the United States and Canada during the Safety contest conducted by the National Safety Council, the P. H. Glatfelter Company, paper manufacturers, Spring Grove, Pa., were awarded a handsome bronze plaque. The presentation was made to Eugene F. Troop, personnel manager of the Glatfelter Company, at the annual National Safety Council Conference in Chicago the week of October 6. Joseph P. Trone, chief electrician, also attended the Conference.

The plaque, beautifully designed, molded in bronze and mounted on wood, bears the inscription: "National Safety Council Trophy, for the best Safety record, awarded to P. H. Glatfelter Company, Spring Grove, Pa. Paper Industry Safety Contest, July 1, 1940-June 30, 1941.

PLAQUE AWARDED TO GLATFELTER CO.

Only Two Lost Time Accidents

For purposes of the safety contest the 152 paper mill members of the council were divided into four groups determined by the number of manhours worked. Group "A" comprised mills with 1,560,000 manhours per year and over. The Glatfelter Company was one of 45 mills in Group "B" comprising 720,000 to 1,560,000 manhours. First prize was won in this group with a record of only two lost-time accidents in 1,122,804 hours worked. In the previous year the modern and well equipped Spring Grove mill placed second.

Though the P. H. Glatfelter Company has always been energetic in its efforts to maintain the safest possible working conditions in the mill and to inculcate in the minds of the employees an ardent safety-mindedness and a concern for the welfare of others, it was not until 1939 that the work was coordinated under the full direction of one department. This is known as the Personnel Department, with Eugene F. Troop, previously chief engineer, as its head.

Plant Safety Committee

For many years the safety program emanated from the main office abetted by a committee of employees known as the "Cleanliness Committee," appointed by the management. This was later changed to a "Plant Safety Committee" made up of all department heads and an appointee from each department. Believing it to be just as important for ideas and suggestions to develop from among the employees as to put into effect those from without, Mr. Troop reorganized the committee set-up so that every employee would have a voice, and a responsible part, in the program. Two committees were established, a "Mill Safety Committee" and a "General Mill Safety Council." The former is an elected body with a representative chosen by each department. This committee meets monthly, is reelected semi-annually and has as its duty to organize suggestions and make recommendations, which are then given to the General Mill Safety Council. This is a permanent body consisting of all the department heads and company executives. It also meets monthly and its duty is to act on the reports from the mill committee and to decide upon general policies.

Complete First Aid Room

A complete first aid room is maintained, listing among its equipment an artificial resuscitator. A doctor and visiting nurse are in attendance when the two day tour changes are made and are on call at all times. There are also two first aid stations in the mill proper.

Many Men Trained in First Aid

Many of the men have been given and are being given training in first aid. There are now 85 qualified to render first aid and among them 14 are qualified as instructors. From this group a man is chosen from each department to serve a six months' period as inspector in his department. It is his duty to render such aid as he is qualified for, to oversee the functioning of all safety controls and to see that every accident, even the slightest cuts and bruises receive attention and are not neglected.

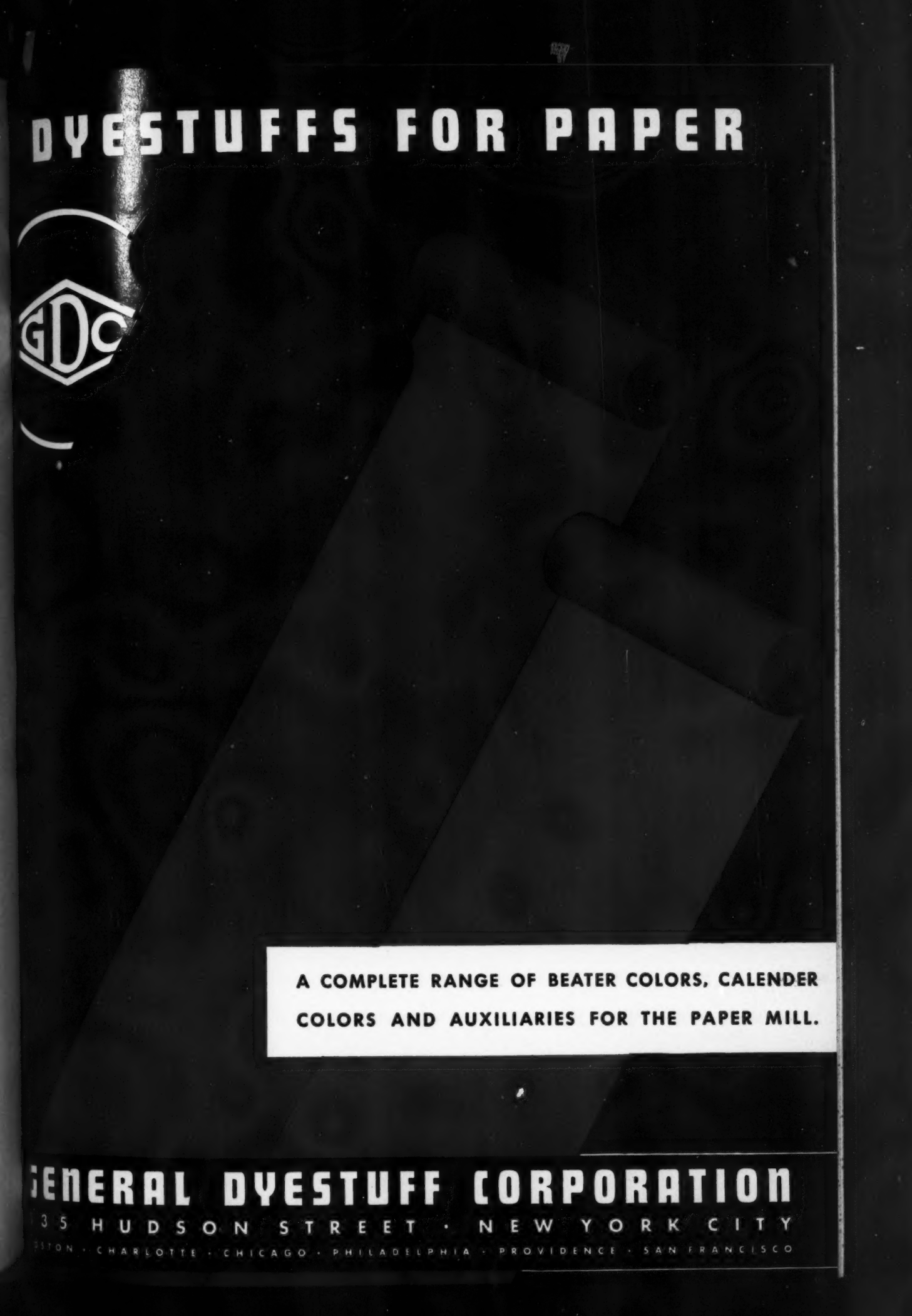
Complete Physical Examination

Before any new employee is allowed to work, he is given a complete physical examination by a physician, full instruction on safety rules, where any hazard might exist in his work, and how to properly and safely conduct himself in his job. He is then asked to report twice at two-week intervals to the Personnel Department for an oral examination. This also helps in determining whether or not he is qualified for that job.

All employees are periodically given free eye examinations. Special protective clothing is mandatory, of course, for certain work, and such health aids as salt tablets, are always available. Over 10,000 of these were consumed in the hottest week of the year.

The management thoroughly believes that individual and group morale are just as important in the prevention of accidents as training and the use of safety devices. Since conditions in the home greatly affect morale, the entire community is included in the safety program. Literature regarding health and the care and prevention of disease is distributed to the homes and schools. Material assistance is given in many ways. Many community and group inter-de-

DYESTUFFS FOR PAPER



A COMPLETE RANGE OF BEATER COLORS, CALENDER COLORS AND AUXILIARIES FOR THE PAPER MILL.

GENERAL DYESTUFF CORPORATION

35 HUDSON STREET · NEW YORK CITY

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partmental activities, instigated by the company had their inception as contributing to this factor of general morale.

Classed in this activity is a continuous contest between the various mill departments. Twelve names are drawn for cash prizes every quarter at a general safety meeting which all employees are asked to attend. Attendance at the meeting is necessary to receive the award. For three of the quarterly drawings all departments have been put into four groups. For anyone to be eligible for a prize all the departments in his group must have been without a lost-time accident for that quarter. However, at the final meeting of the year the groups are disregarded and each department that has not had a lost-time accident is eligible.

The entire community is invited to the final meeting, which is held in the Community Auditorium. At the last meeting the attendance was 748. Suitable entertainment is provided, including talks, or instructive films, on safety. Similar instruction is also provided at the regular quarterly meetings.

Permanent Record is Hung

As a constant reminder of this contest, on the wall in a prominent place in each department a permanent record is hung, stating: "This department has operated —— months without a lost-time accident." The record is held jointly by the boiler plant, box-making, and the "pipefitting and sheet metal working" departments. In August, 1941, they entered their 123rd month without an accident.

Of course, the National Safety Council Posters and others that might be available are posted on nine bulletin boards throughout the mill. Mill news articles are also regularly posted at the time-clock stations.

Excellent Results Achieved

That the new personnel and safety department with its more coordinated activity has achieved excellent results is demonstrated by the lost-time accident record of the past seven years: July 1, 1934 to July 1, 1935, 12; July 1, 1935 to July 1, 1936, 9; July 1, 1936 to July 1, 1937, 6; July 1, 1937 to July 1, 1938, 9; July 1, 1938 to July 1, 1939, 6; July 1, 1939 to July 1, 1940, 2; July 1, 1940 to July 1, 1941, 2.

Gottesman & Co. Appointed Agents

Gottesman & Company, Inc., New York, have been appointed exclusive selling agents by the Mohawk Securities Corporation Limited for their output of high grade moist Groundwood manufactured at their Riviere-du-Loup, Quebec mill, formerly operated by the Warren Company, Ltd. The Riviere-du-Loup Groundwood has always had ready acceptance among papermakers for its fine qualities.

Gottesman & Company, Inc., also represent, among others, for the sale of various classes of woodpulp, the International Paper Company's Southern Kraft Division, the Eastern Corporation's Brewer, Lincoln and Orono mills, the Gaylord Container Corporation, Hawley Pulp and Paper Company, National Container Corporation, St. Lawrence Paper Mills Company, Ltd., Lake St. John Power and Paper Company, Ltd., Container Corporation of America, and the Crown Zellerbach Corporation's Ocean Falls, Camas and West Linn mills.

P. H. Glatfelter Makes Defense Exhibit

A great deal of publicity has been given to the defense industries of York, Pa., especially to the plan which originated there, known as the York Plan, for mutually cooperating in bidding on, and manufacturing of defense materials. To demonstrate how this plan can operate among the diversified industries of York and to give the public a view of the many products contributed by York and York County, an exhibit was held this year at the well known York Inter-State Fair.

Among the exhibitors was the P. H. Glatfelter Company, paper manufacturers, Spring Grove, Pa. The accompanying photograph illustrates its exhibit. Factual data as to why paper is vital for defense and how paper is used for defense were given. A few of the items going into the defense effort in which Glatfelter paper has been used, such as teletype

How Paper Is Used for Defense

rolls for the Signal Corps, envelopes, drinking cups, mimeograph and writing paper for the Army and Navy, Defense stamp albums and soldiers' handbooks were shown.

Survey of Roofing Materials

Report BMS75 of the National Bureau of Standards gives the results of a survey, by H. R. Snoke and L. J. Waldron of the Chemistry Division, of the weathering qualities and extent of use of roofing materials on dwellings in the North Central States. This supplements previous studies made in the Southeastern States (Report BMS6) and Northeastern States (Report BMS29).

The report contains forty-eight photographs illustrating type of weathering of roofing materials, and features of design and construction of roofs.

After weathering, asphalt shingles and roll roofings in the North Central States exhibit the same characteristic features as in the Northeastern and Southeastern States.

Weathering proceeds more rapidly in the southern sections of the North Central States. In cities such as Kansas City and St. Louis, Mo.; Indianapolis, Ind.; and Cincinnati, Ohio, most of these roofs are replaced or re-covered within 20 years.

Copies of the reports mentioned can be obtained from the Superintendent of Documents, Washington, D. C., price 5, 10, and 15 cents, respectively.

PRINTING COMMITTEE REQUESTS PAPER BIDS

(Continued from page 11)

LOT 1—*Newsprint.*—Rolls 28 and 38 inches wide have been added.

LOT 3—*Machine-finish book.*—Size 24 x 32 inches has been replaced by size 22½ x 31 inches.

LOT 10—*Machine-finish book.*—Rolls 32 inches wide have been replaced by rolls 38 inches wide. This lot no longer requires that the paper must be suitable for writing on with ink.

LOT 15, machine-finish book end paper, has been renumbered 18.

OFFSET BOOK.—Lot No. 20 has been added to provide for 80-pound paper in order to meet the requirements of the Government departments. Lot No. 16 has been renumbered to 21 with modifications to provide for 100-, and 120-pound paper.

LOTS 17, 18, AND 19, antique, lightweight machine-finish, and 50% rag lightweight machine-finish book, were renumbered 22, 23, and 24, respectively.

LOTS 20 TO 22, inclusive, supercalendered book, were renumbered 26 to 28, inclusive.

LOT 23, 75% rag laid antique book, was renumbered Lot 29.

LOTS 24 AND 25, 100% rag antique book, were renumbered 31 and 32.

LOTS 26 TO 31, inclusive, supercalendered book, were renumbered 34 to 38, inclusive.

For the purpose of economy, Lot No. 28, specifying 120- and 140-pound supercalendered book, was eliminated and replaced by a new lot, No. 39, calling for 100- and 120-pound machine-coated book paper.

LOTS 36, 37, AND 42, coated book, 50% rag coated book, and 50% rag machine-finish lithograph, were renumbered 41, 42, and 43, respectively.

MIMEOGRAPH.—Lot 43 was renumbered 44. A new lot numbered 45 was added to provide for 32½- and 34½-inch rolls.

25% rag mimeograph, Lot 47, was renumbered Lot 48, and a new lot numbered 49 was added to provide for 32½- and 34½-inch rolls.

SULPHITE WRITING—*Lot 60.*—The maximum width was changed from 34 to 38 inches. A new lot numbered 62, for colored sulphite writing, was added to provide for 32-, 34-, and 38-inch rolls. Previous Lot 62, yellow sulphite writing, was modified to provide for 32-, 34-, and 38-inch rolls of sulphite writing in several colors and was renumbered 63.

LOT 63— *100% rag white writing.*—This lot was eliminated since it is no longer needed.

LOT 64—*Lithograph-finish map.*—This lot was revised to provide flat paper cut any size having a minimum width of 22 inches and a maximum width of 48 inches instead of previously specified sizes.

LOT 65—*50% rag lithograph-finish map.*—This lot was revised by including 32-pound paper.

SULPHITE MANIFOLD.—Two new lots, one for white numbered 71, the other for colored numbered 73, have been added to provide for 24-inch rolls. Previous lot No. 71 was renumbered 72.

50% RAG MANIFOLD.—Lots 73, 74, 75, and 76 were renumbered 75, 76, 78, and 79, respectively. Two new lots, one for white numbered 77, the other for colored numbered 80, were added to provide for 24-inch rolls.

LOTS 78 AND 79, AND 83.—100% rag white manifold and 50% rag white glazed manifold were renumbered 83 and 84, and 85, respectively.

SULPHITE WHITE BOND.—A new lot numbered 103 was added to provide for 32-inch rolls.

25% RAG BOND.—Lots 109 to 113, inclusive, were renumbered 105 to 109, inclusive. Lots 114 to 117, inclusive, were renumbered 113 to 116, inclusive. Five new lots for white and colored 25% rag bond paper numbered 110 to 112, inclusive, and 117 and 118 were added to provide for 24-, 32-, 34-, 40-, and 48-inch rolls.

50% RAG BOND.—Lot 123 was renumbered 124. A new lot numbered 123 was added to provide for 24-inch rolls.

LOT 140—*100% rag declaration bond.*—A new size was added.

LOTS 151 AND 152.—*Sulphite white ledger.* The maximum width was changed from 32 to 42 inches.

LOTS 154 TO 157, 160 TO 165, 184, 190 TO 193, 196, 203 AND 204, 205, 280, 307, 360 AND 361—*25% rag ledger, 50% rag ledger, sulphite ledger, 50% rag index, 100% rag index, machine-finish cover, and 50% rag laid cover, jute tag, and wood bristol, news board and chip board.*—Modifications were made in sizes.

LOT 210.—Wood manila was revised to include 32-inch rolls.

CHEMICAL WOOD MANILA.—A new lot numbered 212 was added to provide for 32-inch rolls.

UNITED STATES POSTAL CARD BRISTOL.—A new lot numbered 327 was added since the estimated quantity has been increased 1,500,000 over the preceding period which, in the opinion of the Committee, can best be allocated in three instead of two lots.

The brightness of the various grades of paper shall be in accordance with that proposed by the Office of Production Management.

This schedule embraces 184 lots, which is 16 more than the preceding schedule. The quantity estimated for the term of 6 months beginning January 1, 1942, is approximately 94,200,000 pounds, as compared with 57,104,000 pounds for the previous contract period of 6 months.

Albany Container Buys Plant

[FROM OUR REGULAR CORRESPONDENT]

COHOES, N. Y., October 20, 1941—Announcement is made here that negotiations have been completed for the sale of the abandoned Gledhill plant, to the Albany Corrugated Container Corporation for an amount estimated at $30,000. Arrangements are now under way for reopening the plant after new machinery has been installed. A force of about 75 hands are to be employed at the start and this number will be increased as the business warrants. The plant, among the largest of its kind in this country, operated here for a number of years and suspended operations following the death of the president. City officials have been engaged in a drive to reopen the plant for some time. Attorney Walter Stedman, of Albany, represented the Albany Corrugated Company in the proceedings and Attorney Arthur J. Harvey for Scott Gray, trustee in bankruptcy.

Obituary

Joseph W. Harbrecht

Joseph W. Harbrecht, vice-president of the Hinde and Dauch Paper Company, Sandusky, Ohio, was found dead in his boat house, near the Sandusky Yacht Club, early Sunday morning, October 12.

Coroner E. C. Wiegand, who investigated, returned a verdict of accidental drowning. Police said the level of the water in the boat house was about six feet below the level of the dock. It is believed that Mr. Harbrecht missed his footing in going from the dock to his boat.

A life-long resident of Erie County, Mr. Harbrecht, who was aged 53 years and 20 days, started work as a paper folder as a boy of 18 with the Hinde and Dauch Co., and has been affiliated with the company for the past 35 years. At the time of his death he was a vice-president of the company and general superintendent of all mills.

Mr. Harbrecht was a prominent figure in yachting circles, having been a member of both the Sandusky Yacht Club and the Sandusky Sailing Club and a past commodore of the former organization. He also served as commodore of the Inter-Lake Yachting Association in 1940, and was a member of the International Commodore's Association.

Mr. Harbrecht is survived by four daughters, Mrs. Carl J. Butler, and the Misses Dorothy, Virginia and Beverly Harbrecht; two sons, William and Robert Harbrecht; his mother, Mrs. Anna C. Harbrecht; a sister, Miss Helen Harbrecht, all of Sandusky, and two grandchildren. His wife preceded him in death on Oct. 7, 1940.

Funeral arrangements were in charge of the Keller Funeral Home.

Funeral services were at the residence, 629 Columbus avenue, and burial was in Oakland Cemetery.

Earl M. Hill

APPLETON, Wis., October 20, 1941—Earl M. Hill, 51, of Wilmette, Ill., salesman for the Interlake division of the Consolidated Water Power and Paper Company at Appleton, Wis., was killed in an automobile accident Friday afternoon, October 17, on U. S. Highway 41 near Fond du Lac, Wis. His car collided with a truck which suddenly swerved into his path to avoid hitting another which made a turn into a sideroad. Mr. Hill was returning to Chicago from a Wisconsin sales trip. His car overturned in a ditch.

Mr. Hill was a lieutenant in the World War, and was a member of The American Legion, the Masonic lodge and the Congregational church. Survivors include his widow and one son, Stephen; his parents, Mr. and Mrs. George M. Hill of Wisconsin Rapids, Wis., and three brothers.

Funeral services were held Monday afternoon, October 20, at the Congregational church at Wisconsin Rapids, and burial was made in the cemetery there.

A Correction

In the article entitled "Government Issues New Paper Board Order" in the issue of the PAPER TRADE JOURNAL of October 9, a typographical error made the second line under (d) Additional Differentials Applying to All Grades, read, Regular 40's to 49's + 5.00. The correct reading of this line is Regular 40's to 49's + 2.50.

N. E. Paper Men Meet in Boston

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., October 20, 1941—In an address entitled The War on Free Enterprise, delivered Friday evening, October 10, to the New England Paper Merchants Association, Inc., at its dinner meeting at the Hotel Touraine, J. K. Javits, member of the New York and Washington law firm of Javits & Javits, counsel for the National Paper Trade Association of the United States, the parent organization, urged the paper industry and government to cooperate in national defense. He described this common effort as the defense of the private enterprise system and said that paper distributors, in common with all other business men, bore the heaviest responsibilities for the outcome.

The speaker held the close attention of all throughout his address. Sixty members attended the meeting, at which Harry J. Dowd, vice president of the Wrapping Paper Division (H. J. Dowd & Co.), presided, in the absence of Charles A. Esty, president (Carter Rice & Co., Corp., Boston), who was in Washington as a member of the Advisory Committee of OPM.

Before the dinner meeting, the two divisions of the association met at the Touraine in separate rooms to hear reports from delegates to the Chicago Convention and to discuss important business. J. H. Brewer made his report to the Fine Paper Division and Floyd H. Blackman to the Wrapping Paper Division.

Box Firm Gets Desist Order

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 22, 1941—The Federal Trade Commission ordered Bilt-Rite Box Corporation, 242 West 41st street, New York, distributor of corrugated paper garment boxes and shipping containers, and Jacob Glekel and Jacob Press, its officers, to cease and desist from representing that they own and operate or control a plant or factory wherein paper boxes or other shipping containers are manufactured.

Commission findings are that the corporate respondent, in its trade literature, designated itself as "Manufacturers of Corrugated Boxes and Shipping Containers" and "Manufacturers of Cloak, Suit, Dress and Fur Shipping Containers," when it does not own and never has owned or controlled a plant or machinery for such manufacture, but purchases all the boxes sold by it from the manufacturer. These boxes are delivered to the respondent as "knock-down" boxes and the respondent sets up the parts and staples them together.

J. J. Ross Co. Expands

J. J. Ross Company, 250 Frelinghuysen avenue, Newark N. J., has leased an additional two acres of warehouse space and is presently going ahead with grading and construction work in order to have more room for used-equipment for the pulp and paper industry. In all the company will now have 4½ acres of land, with railroad sidings on Lehigh Valley Railroad.

This additional property has been acquired because the J. J. Ross Company when purchasing equipment from mills, immediately removes it from the plant and has it shipped to its own storage and warehouses.

Newsprint Production Increases

Production of newsprint in Canada during September 1941 amounted to 298,276 tons and shipments to 305,010 tons, according to the News Print Service Bureau. Production in the United States was 78,657 tons and shipments 80,252 tons, making a total United States and Canadian news print production of 376,933 tons and shipments of 385,262 tons. During September, 29,403 tons of news print were made in Newfoundland, so that the total North American production for the month amounted to 406,336 tons. Total production in September 1940 was 390,200 tons.

The Canadian mills produced 67,658 tons less in the first nine months of 1941 than in the first nine months of 1940, which was a decrease of two and six tenths per cent. The output in the United States was 4,473 tons or six tenths of one per cent more than in the first nine months of 1940; in Newfoundland production was 2,026 tons or eight tenths of one per cent more, making a net decrease of 61,159 tons, or one and seven tenths per cent less than in the first nine months of 1940.

Stocks of news print paper at the end of September were 148,480 tons at Canadian mills and 11,864 tons at United States mills, making a combined total of 160,344 tons compared with 168,673 tons on August 31, 1941, and 177,542 tons at the end of September 1940.

Enters Heat Transfer Field

Downingtown Iron Works of Downingtown, Pa., near Philadelphia, known for many years for high quality fabrication of steel and alloy plate into tanks and other equipment for the process industries, have recently set up a separate division for the manufacture and design of heaters, coolers and condensers.

This Heat Transfer Division is being housed in its own building and is under the direct supervision of men having long practical and technical experience in the design and fabrication of heat exchangers.

Manager of the new division is R. M. Armstrong, who is in charge of design and sales of the new products. Assisting is F. J. O'Sullivan. Downingtown's consulting metallurgist, Dr. T. H. Nelson will collaborate on problems involving unusual metallurgical problems.

Products of the new division will include: steel and alloy heat exchangers for various process heat transfer applications, including heaters, coolers, condensers, etc. In addition a specialty is made of hot water heaters, brine coolers and refrigeration exchangers.

Literature describing the general line of products being built is available from the company.

TAPPI Notes

The Empire State Section of the Technical Association of the Pulp and Paper Industry will meet at the New York State College of Forestry at 2 P.M. Saturday, November 8th. Dinner will be at the University Club, Syracuse, N. Y., at 6:30 P.M.

The New England Section will meet at the Roger Smith Hotel, Holyoke, Mass., on Friday evening, November 14 at 6:30 P.M. E. W. Tinkers, Executive Secretary of the American Paper and Pulp Association will be the speaker and will discuss current conditions in the paper industry.

F. J. Hamilton, formerly of the British Columbia Pulp and Paper Company is now sulphite superintendent of the Powell River Company, Powell River, B. C.

Harold A. Kline, formerly of the U. S. Chemical Warfare Service, is now located at the U. S. Navy Yard, Philadelphia, Pa.

The Kalamazoo Valley Section will meet at the Park American Hotel, Kalamazoo, Mich., on Thursday, November 6 at 6:30 P.M. M. W. Bray of the Forest Products Laboratory, Madison, Wis., will talk on "Pulping of Southern Woods: Effects of Cooking, Bleaching and Wood Selection on Pulp Quality."

The Ohio Section will meet at the Manchester Hotel, Middletown, Ohio, on Thursday, October 23rd at 6:30 P.M. Harold W. Greider, Director of Research of the Philip Carey Manufacturing Company will talk on "Some Aspects of Research on Asphalt and Asbestos Products."

Standards for Insulating Board

In February 1941 the Insulation Board Institute, the members of which produce approximately 90 per cent of the vegetable fiber type of structural insulating board, requested the Division of Simplified Practice, National Bureau of Standards, to make available its cooperative procedure for the establishment of a simplified practice recommendation for this product.

With its request, the Institute submitted a proposed simplified program for structural insulating board, covering sizes, thicknesses, and treatment of edges. This simplified schedule was developed by a committee of the Institute, and is based on information disclosed by a comprehensive survey of production and consumption, which indicated the relative importance of the various items.

In accordance with the Institute's request, the proposed recommendation was submitted, for approval, to manufacturers, distributors, architects, contractors, and others interested in the product, and was accorded sufficient support to warrant its promulgation as Simplified Practice Recommendation R179-41, Structural Insulating Board. It was made effective from June 1, 1941.

Copies of the recommendation can be purchased from the Superintendent of Documents, Washington, D. C., price 5 cents.

Paper in New Argentina Agreement

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 22, 1941—In the new trade agreement between the United States and Argentina the duty on sanitary paper is reduced by about 24 per cent effective when what is called stage two of the new agreement becomes operative, and present rates on blotting and oiled copy paper are bound against increase.

The United States allowed a 50 per cent reduction in the present duty on casein, reducing it from 5½ cents to 2¾ cents a pound.

Argentina reduced the rate on kraft liner board, 50%; the present rate on oil copying paper from the United States was bound at its present rate against any increase in duty; same applies to blotting paper and the same applies to sanitary paper with the exception that when the Argentine customs receipts reach a certain point the duty will be reduced 25%.

"The Situation Is Under Control"

"The Marines have landed and the situation is under control". How often during emergencies Americans have thrilled to that report!

In the field of white and light-tinted paper stocks TITANOX pigments are like the marines because they take complete control of the problems which arise in making paper opaque and bright. And TITANOX pigments improve the qualities of such types of paper from thin tissues to the heavy packaging stocks and coated printing papers.

If you are hesitating for *any* reason to use TITANOX pigments in *any* of your white and light-colored products, you may find consultation with our Service Department advantageous.

WHITE PAPER PIGMENTS

TITANOX-A (titanium dioxide) most opaque of all white pigments.

TITANOX-B-30 (titanium barium pigment) as a filler or coating pigment.

TITANOX-C (titanium calcium pigment) for coating.

OPACITY
WHITENESS
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FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending October 22, 1941

	High	Low	Last
A. P. W.	1½	1½	1½
Armstrong Cork Co.	29⅜	28½	28⅞
Celotex Corp.	8½	7⅞	8⅛
Celotex Corp., pf.	70	68	70
Certain-Teed Products Corp.	3	2⅞	2⅞
Certain-Teed Products Corp., pf.	28¾	26	27½
Champion Paper & Fibre Co.	21	19⅛	19⅛
Champion Paper & Fibre Co., pf.	106½	106½	106½
Congoleum-Nairn Co.	17½	17	17½
Container Corp. of America	14⅜	12½	14⅜
Continental Diamond Fibre Co.	9⅛	8⅜	9⅛
Crown-Zellerbach Co.	13	12½	12½
Crown-Zellerbach Co., pf.	90½	90	90
Flintkote Co.	13	12⅝	12⅝
Robert Gair	2⅜	2⅛	2⅜
Robert Gair, pf.	11	10	11
International Paper & Power	17¾	16¼	17¼
International Paper & Power, pf.	69	67	68½
Johns-Manville Corp.	61	58¾	60½
Johns-Manville Corp., pf.	123	123	123
Kimberly Clark Corp.	29½	29½	29½
Mac Andrews & Forbes	26	25¼	25¼
Mac Andrews & Forbes, pf.	....	....	....
Masonite Corp.	27¼	26	26⅞
Mead Corp.	7⅜	7	7
Mead Corp., pf.	69	69	69
Paraffine Companies, Inc.	....	....	....
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	13½	12¾	13½
Rayonier, Inc., pf.	27⅛	27	27
Ruberoid Co.	18¼	17	17
Scott Paper Co.	39	38	39
Scott Paper Co., pf.	112¾	112¾	112¾
Sutherland Paper Co.	19½	19	19
Union Bag & Paper Corp.	10⅜	9¾	10¼
United Paperboard Co.	3⅞	3⅝	3⅝
U. S. Gypsum Co.	53¾	50½	50⅞
U. S. Gypsum Co., pf.	176	175¾	175¾
West Virginia Pulp & Paper Co.	18	17¾	18

New York Curb Exchange

High, Low and Last for Week Ending October 22, 1941

	High	Low	Last
American Box Board Co.	4¾	4¾	4¾
Brown Co., pf.	21	21	21
Great Northern Paper	37⅝	37½	37½
Hummel-Ross Fibre Corp.	5⅜	5	5⅜
National Container Corp.	11	11	11
St. Regis Paper Co.	2⅛	2	2
St. Regis Paper Co., pf.	107¼	104	104
Taggart Corp.	2¾	2⅝	2¾

Abitibi May Exceed All Records

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 14, 1941—With the upward swing in net profits starting in August, with the help of the "nine-point" paper and a considerable increase in sales of sulphite pulp, and net operating profits for September that promise to run between $950,000 to over $1,000,000, the current year gives every indication of establishing a new high record for Abitibi Power and Paper Company, Ltd., according to Financial Counsel.

In 1940, net, before depreciation and interest provision, amounted to $8,187,505. This had been the highest figure reached since 1929 when operating income had reached $8,377,240—a record for all time. The 1941 total should exceed this by a considerable amount, for a conservative estimate this year places net this year at upwards of $9,000,000, with a figure of $9,500,000 credited in some circles.

Credit for the current year's net passing the previous record of 1929 will not be due either to a larger tonnage or to a heavier margin of profit on ordinary accounts, but simply to the advantage that Abitibi, and all other Canadian producers of newsprint and pulp that is exportable to the United States enjoy in payment being made in New York funds. A total net of $9,000,000 would mean an increase of a little over $600,000 from the 1929 total, but in the first eight months of 1941 alone the premium on United States funds received by Abitibi, amounted to $1,123,113. So far as tonnage is concerned, the total sales of newsprint in 1940 were 430,489 tons, but in 1929 sales exceeded this by nearly 100,000 tons, at 528,181 tons. In the first eight months of 1941, sales were running slightly behind those of 1940, at 273,874 tons, compared with 289,603 tons. Even at the end of September, according to estimates, 1941 tonnage will still be a little under 1940, although, with the help of "nine-point" paper sales, the full year's tonnage should exceed 1940.

That the company will end 1941 with record net working capital as well as operating profits seems assured, even after allowance is made for the cash payment of $6,274,710 on Oct. 15, on the basis of $130 on each $1,000 bond. Estimates for net working capital at Dec. 31 run between $21,000,000, which would compare with the figure of $18,824,372 at the end of 1940. This would be subject to adjustment for income taxes—still an uncertain quantity for newsprint corporations. Such a position of working capital would indicate that a second very substantial payment could be made fairly early in 1942 on principal account, and quite permissible under foreign exchange regulations—as having been accumulated in 1939, 1940 and 1941.

The notice of motion served on the Ontario government by the Montreal Trust Company in behalf of the bondholders this week, indicates that another attempt is to be made to hold a "forced sale" of the assets before consideration is given to any further payments on principal.

Another Long Delay for Abitibi

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 18, 1941—The legal battle for the assets of the great Abitibi Power and Paper Company has been resumed and the effort to force a judiciary sale again frustrated, for the time being at any rate.

Today Mr. Justice Middleton in the Supmere Court of Ontario heard the motion of the Montreal Trust Co., for a sale of the assets without reserve with the result that the motion was adjourned until October 27.

The adjournment was not unexpected, in view of the recent action of the Ontario government in proclaiming its Abitibi Power and Paper Company, Ltd., moratorium act. The bondholders' protective committee took the position that the legislation was ultra vires of the Ontario legislature, thus posing a question that may take a year or more for the courts to decide.

The act gives the government power to stop proceedings under a sale effort and would halt the sale of the assets under the company's bond mortgage until December 1942. The court will have to decide as to the validity of the act and as this calls for the servicing of notice six days in advance on various parties concerned, it was necessary to adjourn today's proceedings.

It is understood that no matter what the decision

of the court may be on Oct. 27, the matter could be carried to the privy council at London, in which case the moratorium might expire, unless extended, before the case could be decided.

Johns-Manville Earnings Off

The Johns-Manville Corporation and subsidiaries, in its report for the third quarter of 1940, reported a consolidated net income of $1,470,183, compared with net income of $1,638,312 in the like 1940 period. Earnings a common share, after preferred dividends, were $1.62, against $1.79, according to Lewis H. Brown, president.

Net income for the first nine months was $4,488,984, or $4.97 a share, compared with $3,526,325, or $3.72 a share, in the like 1940 period. Net sales for the quarter aggregated $25,941,410, against $16,524,491, while for nine months sales were $64,753,919, against $43,169,483 in the like 1940 period.

Earnings before income and excess profits taxes were $12,853,631 in the first nine months, compared with $5,785,036 in the same period of 1940. Provisions for income and excess profits taxes for nine months amounted to $8,364,647, compared with $2,258,711 in 1940. Wages and salaries for nine months totaled $21,218,859, against $15,145,124.

Kimberly-Clark Nets $1.44

The Kimberly-Clark Corporation and subsidiaries, for the three months ended September 30, 1941, reports a net income of $852,760 after taxes and charges, equal after preferred dividends to $1.44 a share on 488,173 common shares; preceding period $840,715 and $1.42 a share; a year ago $512,624 and 74 cents a share; 9 months' net income $2,209,580 after taxes and charges equal after preferred dividends to $3.61 a share on 488,173 common shares; a year ago $1,886,275 and $2.94 a share.

Soundview Reports for Nine Months

Soundview Pulp Company reports as follows for the nine months to September 30: Net income, $1,391,014, equal to $2.65 a share, compared with $1,670,661 or $3.23 a share last year. September quarter: Net income, $523,541 or 78 cents a share, compared with $478,056 or 93 cents a share in June quarter, and with $509,438 or 99 cents a share in September quarter last year.

Puget Sound Votes Dividend

A dividend of 50 cents a share on the common stock of Puget Sound Pulp and Timber Company, payable October 27, 1941, to stockholders of record October 17, 1941, was declared by the board of directors of the company at their meeting held October 6, 1941.

National Container Declares Dividend

The National Container Corporation has declared a dividend of 50 cents a share on the common stock, payable December 15 to stock of record November 20. Previous payment was 25 cents a share made on September 15.

THE *Engineers* —

TIME-CUTTERS FOR PRODUCTION!

The tick of the clock is the overtone to production in a thousand avenues of industry for the daily needs of plain people as well as for the defense of a determined democracy.

Achievement of their mighty, time-pressed purpose is in the hands of the trained and disciplined minds of the Engineers.

Here, at your call, is an organization of Engineers with diversified experience in many fields of industrial and commercial endeavor. It is prepared to design, to plan, to supervise and to make contracts for construction.

INDUSTRIAL PLANTS • PLANS AND DESIGNS • POWER

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in a tight spot *with Plenty of Room!*

Prefabricated ARMCO Spiral Welded Pipe and fittings made an easy task of this complicated layout. Costs were lower because this method eliminated at least two flanges at every bend.

When close quarters complicate piping layouts here is a ready answer. Just use ARMCO Spiral Welded Pipe. It goes in slick as a whistle and saves time, trouble and money.

ARMCO Spiral Welded Pipe is custom-built to fit each job. Tees, wyes, elbows are made to measure and welded to straight pipe runs. This eliminates a pair of flanges at every bend, conserves space and simplifies installation.

Besides saving hours of tedious assembly, ARMCO "Spiral Welded" brings assurance of trouble-free service. Fewer flanges mean fewer joints, less chance for leaks. What's more, ARMCO Pipe has no threads to invite corrosion.

Let us show you how economical it is to have ARMCO Spiral Welded Pipe tailor-made for that next job. Diameters range from 6 to 36 inches, wall thicknesses from 7/64 to 1/2-inch. Send us your plans; we'll gladly submit cost estimates and a sketch of our proposed design. The American Rolling Mill Company, Pipe Sales Division, 1991 Curtis Street, Middletown, Ohio.

ARMCO

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SPIRAL WELDED PIPE

Union Bag Promotions and Changes

Mr. Geo. B. Gibson, general sales manager of the Union Bag and Paper Corporation, announces the following promotions and transfers of personnel in the Sales Department of the company:

H. C. Lawless is promoted from his position as manager of the Eastern Distributors' Division to that of assistant general sales manager.

M. Derrico has been promoted from manager of the Specialty Division to Industrial Specialty Bag representative. This is a new and important position —one demanding the creative and practical ability which Mr. Derrico possesses.

B. A. Weathers, Jr., and J. P. Duffy have been promoted from their former positions to that of manager of the Distributors' Chain Store and Specialty Chain Store Division respectively. This is a new and important division of the company and one in which close cooperation is extremely essential.

T. S. Hodgson is promoted from his position as Western manager to that of manager of the Distributors' Division and is transferred from Chicago to New York.

H. G. Thiermann has been promoted from Northeastern manager of the Distributors' Division to managers of Eastern Distributors' Division.

G. W. Shelhammer has been promoted to position vacated by Mr. Hodgson as Western manager of the Distributors' Division. Mr. Shelhammer has had long and varied experience in the company and his ability well qualifies him for his new work. He will be assisted by L. Ransom.

Rod Davis, Jr., is to be transferred from the Minneapolis and St. Paul territory to the Ohio territory.

The territory assignments formerly handled by Mr. Davis will be added to the present assignment of Mr. Traynor who will cover his present territory and the Minneapolis and St. Paul territory.

E. E. Brown is to succeed Mr. Derrico as manager of the Specialty Division. Mr. Brown is leaving his position as president of Superior-Lawrence Bag Company to join the Union Bag and Paper Corporation. His wealth of experience both from the standpoint of manufacturing as well as sales well qualifies him for his new work.

Geo. E. Chisholm will remain as manager of the Sales Promotion Department.

J. D. Griffin will remain as manager of the Scrap Division.

N. T. Beardsley will remain as manager of the Board and Pulp Department.

R. A. Stevens will remain as manager of the Export Department.

Licenses National Gypsum Co.

The Hummel-Ross Fibre Corporation, Hopewell, Va., announces the licensing of the National Gypsum Company for the use of the secondary head box under the Hummel-Ross United States Product and Process patents for this equipment. This is the thirteenth company now licensed under these patents.

The secondary head box is a piece of equipment that makes it possible to make a homogeneous multilayer sheet on a Fourdrinier paperboard machine, instead of the single sheet regularly made.

To Give Wage Increase

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., October 20, 1941—Following a wage conference each week it was announced that more than 800 employees of the Union Bag and Paper Company will share in an increase in wages. Announcement was made by an official of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers that men employees receiving 49 cents an hour will be increased to 54 cents and the wage schedules of other workers in the factories will be adjusted at a later conference.

Committees of the workers in each department are to meet with union and corporation officials on different days to plan for a revised wage scale for the respective departments. It was stated that time and one-half will be given those who work more than eight hours a day or more than forty hours a week and those who might be recalled after the working day is completed will receive pay for four hour's work. The workers are to have six holidays during the year.

Representing the company at the conference were Dr. Karl R. Karlson, J. A. Weddell, Alexander Calder, of New York City, P. Fay Marrs, True M. Avery and Lawrence Ross, of Glens Falls, while John P. Burke, Joseph Tonnelli, George C. Brooks and committee of various departments of the bag factory represented the union.

To Save Malone Mill

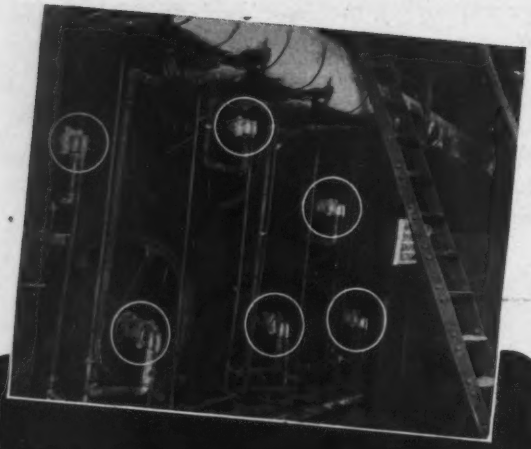
MALONE, N. Y., October 20, 1941—A meeting of the local Chamber of Commerce was held last week at which consideration was given to the raising by public subscription of sufficient funds to finance the purchase of the idle mill of the bankrupt Malone Paper Mill Company. The meeting was held for the purpose of making plans to forestall the razing of the mill buildings while the directors of the organization plan to sound out public sentiment in order to ascertain the chances for success if such a campaign is undertaken. The property is now owned by Abe Cooper, of Watertown, who plans to tear down the idle buildings in order to save taxes. The directors of the local organization propose the formation of a local stock corporation to hold title to the mill if its purchase could be brought about. The Chamber of Commerce would then seek to sell the property to some industrial concern.

When the razing of the mill was first threatened the organization appealed to the village to buy the mill but the village board found it could not purchase such property except when needed solely for municipal purposes.

In keeping abreast of the individual finishing requirements of all papers, we have developed the most complete line of super-calender and embossing rolls in America. This wide selection . . . backed by engineering data and our broad experience in application . . . permits the choice of the right roll to produce the right finish on all super-calendered papers, with uniform production and long roll life.

To Handle Brown's Linen Ledger

The Butler Paper Company of St. Louis has been designated as a distributor of L. L. Brown's Linen Ledger, the 100% new white rag permanent record paper made by the L. L. Brown Paper Company of Adams, Mass. This grade is also stocked in St. Louis by the Shaughnessy, Kniep, Hawe Paper Company.



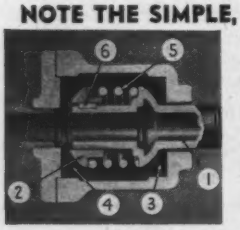
At the Continental Paper Co.
149 JOHNSON JOINTS
End All Steam Fit Troubles

So substantial are the savings and benefits offered by the Johnson Rotary Pressure Joint that it has set an entirely new pace in the paper making industry. There is nothing else like it—nothing which so completely eliminates all the time and money wasting troubles of the old stuffing-box steam fits. It is completely packless, self-oiling, self-adjusting, and even self-aligning. In addition it offers a better, simpler way to provide for syphon drainage of rolls—with a freedom of lateral movement built right in that keeps syphon pipe from rubbing on dryer journals.

It is easy to see why the Johnson Joint, with all these exclusive betterments, has won such widespread acceptance, so quickly. Today there are thirty-seven mills—like the Continental Paper Co.—which have purchased from 100 to as many as 760 Johnson Joints. More than one hundred mills have purchased 50 or more.

Why not decide to get this efficient, trouble-free operation for your plant. The cost of changing over is only moderate, and users report that the Johnson Joint quickly pays for itself out of savings in maintenance.

NOTE THE SIMPLE, RUGGED CONSTRUCTION



Nipple (1) is fastened to roll of paper machine, calender or corrugator. Collar (2) is keyed (6) to nipple, but is free to slide back and forth. Carbon-graphite seal ring (3) and bearing ring (4) eliminate packing and are completely self-lubricating. Spring (5) is for initial seating only; in operation joint is pressure sealed—adjusts itself automatically for most efficient operation.

Write for comprehensive new bulletin

The Johnson Corporation
828 WOOD STREET THREE RIVERS, MICH.

FOR DRY, CLEAN, OIL-FREE COMPRESSED AIR

—use this simple, long lasting Johnson-Gast Separator. Employs the two best principles of separation, expansion and change of direction—removes better than 99% of all foreign matter from compressed air. Also available for service on steam lines. The complete Johnson-Gast line includes After-coolers—to condense vaporized moisture so Separator can remove it—and Oil Absorbers—to remove every final trace of oil.

Estate of Byron B. Taggart

WATERTOWN, N. Y., October 22, 1941—The gross value of the estate of the late Byron B. Taggart, head of the Taggart Corporation, is valued at $952,646.27, according to an appraisal completed by the county treasurer. He died April 13. The net estate for distribution among the heirs totals $815,596.37 after total deductions of $137,049.90. The gross estate is composed of $14,250 realty, $642,362.48 securities, $291,503.79 jointly-owned property and $4,530 miscellaneous property. He also carried $129,800 life insurance of which $45,000 was payable to his estate and the remaining $84,800 payable to his heirs, $40,000 being exempt from taxation. Besides extensive bank deposits constantly available for use he held $90,000 face value of government bonds and some Canadian railway bonds. He owned property in Florida, appraised at $40,000 which brings the gross value of his estate to $973,721.89 after deductions of the $14,250 of local realty.

Mrs. Josephine Taggart, the widow, benefits to a total of $156,579, under the will of this $25,000 is an outright legacy, $121,707 is the valuation placed on a life use of $359,480.18, half the residuary estate, $4,486 is the value of the life use of the residence, $2,000 the automobiles and personal property, and $3,386 the value of life use of $10,000 worth of Taggart Company gold bonds. Mrs. Florence T. Adams, a daughter, will benefit by the amount of $181,076.55; Mrs. Francis Babock, daughter, of Riverdale, $182,822.68, and Mrs. Josephine Edwards, a daughter, New South Wales, $182,711.77. Under provisions of the will Mrs. Grace Dillon, sister, of Redding Bridge, Conn., will receive $2,000 and $2,743 value of life use of $20,000; Mrs. Mary Tanner, of New York City, sister, $2,000 and $3,932 value of $20,000; Jennie T. Kinney, cousin, of Lewiston, $1,000; Josephine Jones, niece, Buffalo, and Frances Flanagan, niece, Baltimore, $500 each; Mabel A. Hungerford, New York City, $2,500; Catherine Cantwell, Watertown, $500, and Mrs. John Kelley, of Watertown, $2,000.

Pumps

Pumps, a 340-page book by Frank A. Kristal of the Weinman Pump Manufacturing Company and F. A. Annett, associate editor of *Power*, has just been published by the McGraw-Hill Publishing Company.

This book is a complete, practical treatment of all types and designs of pump and pumping problems for the designer, operator and student. It discusses a wide range of pump applications, including boiler feed, condensate, deep well, sewage and sludge, chemical, paper and pulp mill, etc., how to install and maintain pumps and how to locate and remedy pump troubles.

Following are some of the common questions answered: What makes a pump work? What type of pump is suitable for a specific task? How can you estimate the head against which a pump must work? For most economical operation, how do you calculate pipe sizes? It is a book for a buyer to consult before placing an order and for a operator to have at hand to aid in operating at maximum efficiency.

This book may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd street, New York, N. Y., at $3.50 per copy.

To Do Sheeting

The Robert L. Nelson Company, Inc., 323 East 38th street, New York City, in the heart of Manhattan, is fully equipped and is operating its new converting plant for sheeting and re-winding on full schedule.

The company occupies a modern, steel and concrete, fire-proof five-story and basement building, with extra large capacity elevator, excellent truck loading facilities and ample storage space to handle numerous carloads of paper.

A fast running Moore and White Sheet Cutter, with Lay-Boy and a thirty-one roll backstand can slit and sheet Jumbo rolls up to 72 inches width in a range of basis weights from 10 lb. tissues to maximum weights with a large daily production capacity.

In addition, the equipment consists of Cameron roll winders, flat cutters (one 72 inch wide), packing rooms, machine shop, etc., so that prompt and dependable service can be rendered on a variety of sheeting and re-winding work.

A department is also maintained to handle any style export packing, especially wood frames, top and bottom, with iron strapping, and water-proof bundles or bales.

There will be carried at all times, a large selection of both fine and coarse papers in rolls and sheets, for immediate delivery.

The plant, under direct supervision of its president, Robert L. Nelson, offers to both mills and paper merchants, a fully rounded converting and packing service, conveniently located to all piers and freight stations for domestic and export shipments.

It affords timely relief to mills having "bottle-necks" in their converting departments, or to paper merchants who require sheeting, re-winding, and packing, in order to meet definite commitments.

TRADE AUTOMATIC MARK

Manufacturers for Over Thirty Years

MODERN Electric Propelled INDUSTRIAL TRUCKS

FOR ECONOMICAL MATERIALS HANDLING

- LOW AND HIGH LIFT TRUCKS
- FORK TRUCKS
- PULP AND BALE HANDLERS
- PAPER ROLL HANDLERS
- LOAD CARRIERS
- TRACTORS — CRANES

Capacities 1,000 to 10,000 Lbs.

☆ Center-Control 3000 to 6000 lb. capacity motorized revolving paper roll handlers.

Heavy-duty, center-control fork trucks—telescopic tilting, tiering type for low-cost roll storage and transportation. Capacities 3000 to 6000 lbs.

☆ Center-Control 6000 to 7000 lb. capacity heavy-duty, motorized revolving paper roll handlers.

☆ Box-car bale and roll unloader for single tier storage. 1500 to 2500 lbs.

☆ Box-cars can be loaded and unloaded in record time — with motorized roll upender. Capacities up to 3000 lbs.

☆ Chisel type pulp handlers for box-car loading, unloading and stacking.

☆ 6000 lb. capacity low-lift and high-lift trucks for skid transportation of small rolls and flat stock.

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Board Men to Meet

H. S. Adler, secretary, announces that the annual meeting of the members of the National Paperboard Association will be held at the Waldorf-Astoria Hotel, New York City, Wednesday and Thursday, November 12 and 13.

This meeting is called for the election of officers for the ensuing year, for taking such action as is specified in the By-Laws of the Association, and for transacting such other business as may come before the meeting.

An interesting program is being prepared, which will include timely reports by officers and by members of the staff.

To Handle Brown Lines in Minneapolis

The L. L. Brown Paper Company of Adams, Mass., announces the appointment of the Graham Paper Company of Minneapolis as the distributor in that area of L. L. Brown's Linen Ledger, Greylock Linen Ledger and Escort Ledger and Machine Posting. The new agent is now equipped with representative stocks of these well-known lines.

A HIGHLY systematic method of control over production, and modern research facilities have made Witco Carbon Blacks among the most highly favored blacks in the paper industry. Our staff will gladly assist you in the selection of the right grade and aid you in its adaptation to your specific needs. We believe you will find our No. 11 especially useful for your purpose. Fill out and mail the coupon below for further information on Witco Blacks and other Witco products used in the manufacture of paper.

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New York, 295 Madison Avenue • Boston, 141 Milk Street • Chicago, Tribune Tower • Cleveland, 616 St. Clair Avenue, N.E. • Witco Affiliates: Witco Oil & Gas Company • The Pioneer Asphalt Company • Panhandle Carbon Company • Foreign Office, London, England

WISHNICK-TUMPEER, INC.
295 Madison Avenue, New York, N. Y.

Gentlemen: Please send me a free copy of WITCO PRODUCTS. I am interested in the following:

☐ Witco Carbon Blacks ☐ Witco Clays ☐ Witco Calcium Carbonate ☐ Witco Blanc Fixe

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FIRM .....

ADDRESS .....

CITY ..... STATE .....

DEPT. J.

Southeastern Paper Men Meet

The Southeastern Paper Trade Association, Inc., a member of the National Paper Trade Association, met at The Pine Needles, Knollwood, Southern Pines, N. C., October 3 and 4, 1941. The mornings and evenings were devoted to the business of meetings, presided over by Otto F. Hamilton, of the Hamilton Paper Corporation of Richmond, Va., the association president. Afternoons were spent in enjoying the championship eighteen-hole golf course and the eighteen-hole putting course located at the hotel. The group adopted several recommendations for transmission to the committee of the National Association, which is preparing a report to Leon Henderson, price control administrator, at Washington, D. C.

Among the recommendations are: standardization of wrapping craft to include only four weights, these being 30, 50, 70, and 90 lbs.; elimination of bundle bags and the like and certain sized papers, grocery bags and sacks; a cut of from the present number forty to four in the sizes and weights of paper towels and standardization of toilet tissue to rolls of minimum of one thousand sheets sized 4½ x 4½ and of a minimum weight of 10 and 12 pounds. It is hoped that this will increase production and standardize weights and sizes throughout the country.

Members of the Southeastern Association present were: Otto F. Hamilton, Hamilton Paper Corporation, Richmond, Va.; Evans Caskie, Caskie Paper Company, Lynchburg, Va.; Hugh Boyer and Gus Shaw of the Caskie Paper Company, Charlotte, N. C.; H. H. Hartman and S. W. Bagley, Epps Fitzgerald Paper Company, Raleigh, N. C.; F. G. McNeil and T. C. McNeil, McNeil Paper Company, Charlotte, N. C.; R. S. Johnston, Old Dominion Paper Company, Norfolk, Va.; Lary Widman, Southern Paper Products, Asheville, N. C.; Tom Craig, Roanoke Paper Company, Roanoke, Va.; S. G. Dillard, Pete Murphy, and Hop Bell, Dillard Paper Company, of Greensboro, N. C.; J. B. Fink, H. A. Anthony, Parker Paper Company, High Point, N. C.; J. M. H. Fitzgerald, Epps Fitzgerald Paper Company, Columbia, S. C.; James Alexander McKay, Asheville, N. C.

Mill men in attendance at the meeting of the Southeastern Paper Trade Association, Inc., were: Claude Reams, of Union Bag and Paper Company, Greensboro, N. C.; Paul Burgderfer, of Sutherland Paper Company, Richmond, Va.; Paul K. Craig of S. D. Warren Company, Philadelphia, Pa.

Buy Paper Under Walsh-Healey Act

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 22, 1941—In the week ending October 4, the Government purchased $513,309 worth of paper under the Walsh-Healey act with the following orders:

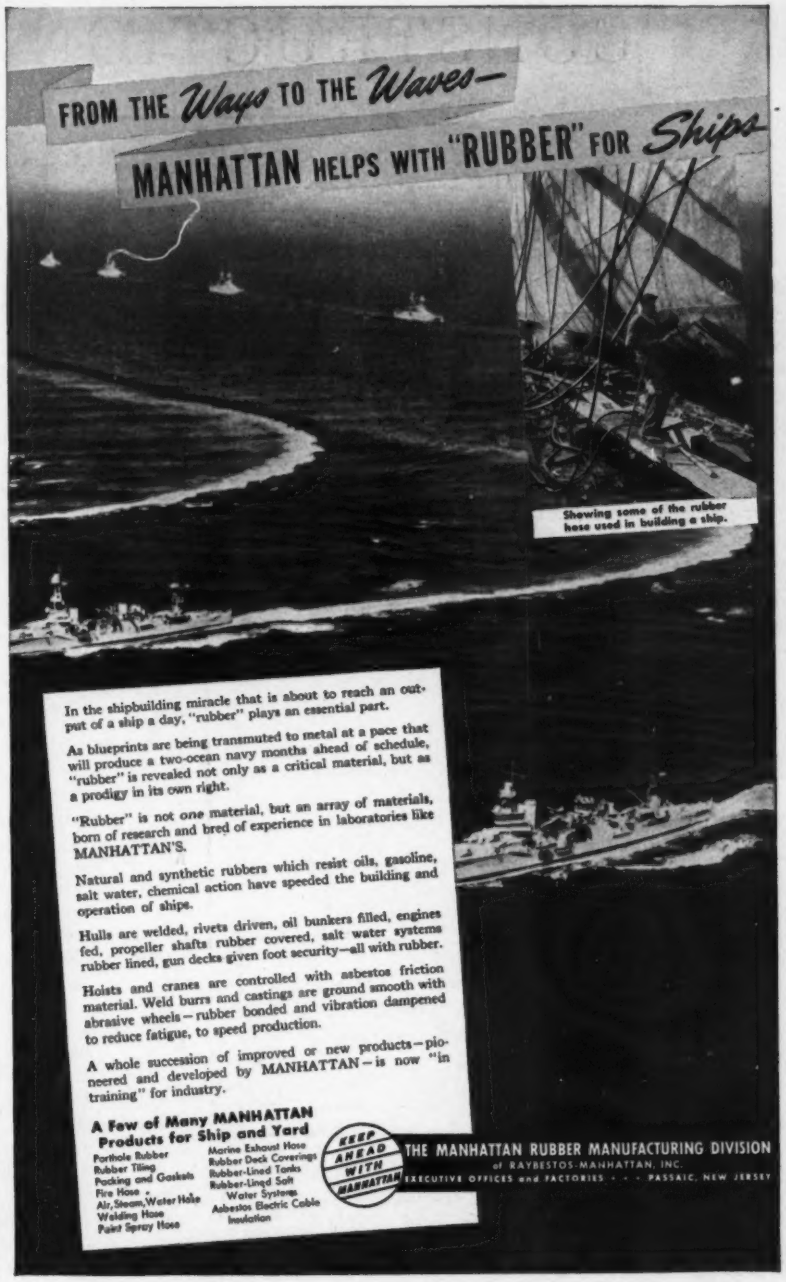
$53,766 worth of mimeo paper for Agri. Purch. Sales & Traffic, from Paper Corporation of U. S.; $14,080 worth of writing paper for GPO from Eastern Corporation; $12,464 worth of writing paper for same from same; $404,167 worth of paper for GPO from Whitaker Paper Company; $14,666 worth of chipboard boxes for War QMC Calif., from Flintkote Co.; $14,166 worth of plain cards for Treas. Proc. from Guide System & Supplies Inc.

Lakes States Meet

The Lakes States Section of the Technical Association of the Pulp and Paper Industry met Tuesday, October 14th at the Conway Hotel in Appleton, Wis., to hear Dr. Ritter of the United States Forest Products Laboratory deliver a paper on the subject "The Properties of Refined Asplund Fibre and Refined Semi-chemical Pulp". This was the first meeting of the 1941-1942 season and was well attended, with some 65 members and guests from points as far removed as Minneapolis.

George J. Ritter pointed out the high yields and undegraded state of fibre which can be obtained by finishing the pulping operation with chlorine. The base pulps were obtained either by refining in the Asplund Mill or from high yield semi-chemical cooks. He also discussed the relative proportions of hemicelluloses to cellulose in wood in order to give a background for the theoretical discussion of high yields of lignin free pulp. This gave rise to an interesting discussion particularly on the part of the cellulose chemists present. Drs. Brauns, Clark and Heuser were among those participating in the more active part of this discussion.

This meeting was an excellent beginning for the Lakes States program year and indicates that the new chairman, Mr. Malcove, has planned a well balanced schedule. The Lakes Section meets at the Conway Hotel for dinner at 6:30 each second Tuesday of the month from October to May. Anyone interested in paper making or allied industries is welcome.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Those present included: Wm. H. Aiken, Leslie H. Andrews, Arnold Beaman, Peter B. Borlew, William H. Burger, Chien Chu, James d'A. Clark, Cyril Delevanti, H. P. Dixson, M. L. Downs, Wm. A. Fannon, Fred S. Hanson, John A. Hanson, John M. J. Hayes, Dr. E. Heuser, Earl M. Hill, Lynn D. Howell, C. Jacobs, W. A. Johnson, Roy P. Kirkeide, R. G. Knechtges, J. O. Logan, N. L. Malcove, W. M. McGraw, R. W. Meyer, C. R. Morse, Emil R. Padanc, Ken Pinkerton, W. J. Plank, T. R. Probst, John C. Redd, Geo. J. Ritter, Fred W. Sanders, W. Allan Schenck, A. G. Sharp, Howard Sheldon, Gilbert Owens, W. Schlafge, Cliff Swett, Martin W. Van de Haurshot, Edward N. Voigtman, H. L. Voss, John P. Weidner, S. D. Wells, Herbert Wenberg, and J. Wollwage.

Mohawk Warehouse Burns

WATERFORD, N. Y., October 20, 1941—A spectacular fire broke out last week on King's Canal and destroyed two large warehouses owned by the Mohawk Paper Mills. The structures contained paper in rolls, waste paper as well as machinery including a new machine and machine parts. The fire was fanned by a high wind which spread flaming brands over a wide area. No estimate has been made as yet of the damage and cause of the blaze is as yet undetermined.

CONSTRUCTION NEWS

Palmyra, Mich. — The Simplex Paper Corporation, Adrian, Mich., manufacturer of building and insulating papers, chipboard, straw board, etc., has begun an expansion program at mill at Palmyra, to practically double the papermaking capacity. Additional floor space will be utilized for the installation of new machinery and equipment. Work is scheduled for completion around the close of this year. No estimate of cost announced. Further expansion in future also is being considered at this mill, as well as paper-converting plant at Adrian, with operations now on a maximum schedule at both plants. Company is now utilizing about 80 per cent of output for production for the National Defense program, including large output of containers for shell service, water-proof palminated paper being used for this purpose, special water-proof crepe wrapping paper, water-proof case linings, wall board, building papers, etc.

Garwood, N. J.—The Plyfiber Container Corporation, a new company at this place, has arranged for a lease of a local one-story building, about 10,000 square feet of floor space, owned by the Bell Factories Terminal Company. Company will take immediate possession and will install equipment for new plant. Production is scheduled to begin soon.

Salem, Ore. — The Oregon Pulp and Paper Company has begun erection of new three-story building, about 80 x 200 feet, at 315 South Commercial street, recently referred to in these columns. Structure is expected to be completed around the close of the year, and will be used largely for storage and distributing service. It is reported to cost approximately $100,000, with equipment. Vieske & Hannaman, 1440 South Thirteenth street, Salem, have the erection contract. Arthur P. Cramer, Bedell Building, Portland, Ore., is architect and engineer.

Waterford, N. Y.—Fire recently destroyed two buildings at local mill of the Mohawk Paper Mills, Inc., manufacturer of bond and other paper stocks. Structures were used for storage and distribution. No estimate of loss has been announced. Rebuilding is under consideration.

Philadelphia, Pa.—Aatell & Jones, Inc., 3360-64 Frankford avenue, manufacturer of paper specialties, has purchased building at location noted, heretofore occupied under lease, for a reported consideration of $45,000. The mill occupies a site about 50 x 300 feet, and will be developed by company as a permanent plant.

Parchment, Mich.—The Kalamazoo Vegetable Parchment Company, Parchment, near Kalamazoo, manufacturer of waxed, greaseproof and other processed paper stocks, plans extensions in filtration plant at mill. Surveys and estimates of cost will be made by Shoecraft, Drury & McNamee, Ann Arbor, Mich., consulting engineers.

Perth Amboy, N. J.—The Philip Carey Manufacturing Company, Lockland, Cincinnati, Ohio, manufacturer of roofing papers, asbestos paper board products, etc., has active work under way on modernizing and reconditioning former plant of the Pardee Tile Works, Inc., South street, Perth Amboy, acquired a few months ago, as previously noted in these columns. Company has secured priorities for required materials for the improvement program, and a considerable part of output will be used by the Government as soon as actual production is in progress, including roofing and board specialties. The plant will provide about 200,000 square feet of floor space and will be equipped for large output. It is proposed to have the mill ready for manufacture at early date, when employment will be given to over 200 persons, with increase in this force at a later date. Plant will be developed as one of the main mills of the company.

Kalamazoo, Mich.—The Illinois Envelope Company, 400 Bryant avenue, manufacturer of commercial envelopes and kindred paper stocks, plans alterations and improvements in plant. No estimate of cost has been announced. Bids have been asked on general contract and award is scheduled to be made soon.

Green Island, N. Y.—Fire recently destroyed a one-story building at Painee and Hamilton streets, occupied by F. W. Simmons, Inc., waste paper products, under lease. No estimate of loss has been announced. Rebuilding is planned.

Pembroke, Ont. — The Consolidated Paper Corporation, Ltd., Sun Life Building, Montreal, Que., is said to be planning construction of a new one-story mill at Pembroke, to be used in connection with lumbering operations for pulp wood supply in that district. Mill will be equipped for large capacity and is estimated to cost close to $100,000, with equipment.

Vancouver, B. C.—The Sorg Pulp Company, Inc., Royal Bank Building, Vancouver, B. C., recently organized by officials of the Sorg Paper Company, Middletown, Ohio, has awarded contract to the Dominion Construction Company, Ltd., 509 Richards street, Vancouver, for extensions and improvements in pulp mill at Port Mellon, Howe Sound district, lately acquired, including several new one-story buildings and installation of equipment. Work is estimated to cost about $100,000, and will be placed under way at once.

Ottawa, Ont. — The British-American Bank Note Company, Ltd., 262 Wellington street, manufacturer of paper products, has approved plans for alterations and improvements in mill, with installation of equipment for increased capacity. Work is estimated to cost approximately $75,000. Contract has been awarded to Ross-Meager, Ltd., 7 Echo drive, and program will be placed under way at once. J. A. Ewart, 165 Sparks street, Ottawa, is architect.

Savannah, Ga.—The Union Bag & Paper Corporation, Woolworth Building, New York, N. Y., manufacturer of kraft paper products, plans construction of a number of auxiliary buildings in connection with general expansion program at mill at Savannah, recently mentioned in these columns. These will include extensions in power station, a new club house and restaurant for employes, storage and distribution structures, and several other miscellane-

ous buildings. Work on entire project is being placed under way and is scheduled for completion next fall. Capacity of plant will be increased by approximately 300 tons per day, making a total rating for mill of 1000 tons daily. The cost of the expansion is estimated about $4,600,000.

Kaukauna, Wis.—The Thilmany Pulp and Paper Company, manufacturer of glassine, greaseproof and other processed paper stocks, is awarding miscellaneous contracts for work in connection with new addition to mill, adjoining present paper bag building at lower mill, previously referred to in these columns. An award has been made to Fenestra Steel Window Company for steel sash, and to the Federal-American Cement Tile Company for roofing, Milwaukee and Chicago, respectively. Other contracts for building requirements are scheduled to be made soon. Structure will be one- and two-story, about 70 x 300 feet, and is reported to cost in excess of $100,000, including equipment. The Permanent Construction Company, 2712 North Milton street, Milwaukee, is general contractor.

Kalamazoo, Mich.—The Illinois Envelope Company, 400 Bryant avenue, manufacturer of commercial envelopes and kindred paper stocks, is said to be planning construction of a one-story addition to plant, in addition to alterations and improvements in present structure, recently noted in these columns. Stewart - Kingscott Company, Kalamazoo, architect, has been engaged to prepare plans. No estimate of the cost of the improvement has as yet been announced.

Richwood, W. Va. — The Cherry River Paper Company, manufacturer of board and paper specialties, has been forced to curtail operations due to growing need for raw materials for production, and out of a working force of 155 persons about 40 employes have been released, it is stated, pending an improvement in the situation. The Parkersburg Corrugated Box Company, Parkersburg, W. Va., which is securing its paper board requirements from the Cherry River mill, similarly is affected with threatened curtailment. The latter company is giving employmen to about 60 persons at present time.

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PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.
Henry J. Berger
EDITOR

Vol. 113 October 23, 1941 No. 17

COMING EVENTS IN PAPER INDUSTRY

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

PRODUCTION AND TAXES

The taxation trend in 1942 is expected to be sharply upward. The outlook for a substantial part of the output of industry is expected by some economists to be more or less stabilized at approximately the peak reached late last month. As the future appears more uncertain today than in normal times, the three-part question has been raised, as to the effect on business concerns of defense demands; higher taxation; the government's rising non-defense spending, and the ability of business concerns to contribute in taxes the estimated revenue required to partly finance the huge total of government expenditures.

The problem of higher taxes and the ability of business firms to meet them cannot be set aside as something incidental to the defense emergency, Henry H. Heimann, executive manager of the National Association of Credit Men, declares in the association's monthly business review of October 15. "The impact of defense production problems, raw material bottlenecks, and curtailment of normal distribution, together with added tax burdens," Mr. Heimann states, "presents today's business managements with choices and decisions both difficult and delicate. And there is no respite in sight. Whatever the size of the bill for the individual or the firm today, we can only be sure that it will be much more tomorrow. The storm warnings of a newer and bigger tax bill in 1942 are already hoisted."

Analyzing the relationship of government debt to the economic situation, Mr. Heimann points out that, "there remains no doubt that the rising rate of spending will bring forth many hitherto inconceivable tax measures to meet the vast expenditures. In the midst of these uncertainties there is, however, one small crumb of comfort; the cost of carrying the national debt is still relatively low. With twice the debt of World War 1, we have practically the same total carrying charge. The implications of that situation, however, are serious. They bespeak portentous maladjustments in the workings of our capitalistic syetem, dependent as it has been on the demand for private investment capital and a rate of return on the investment to satisfy the demand. The obverse side of this matter of low interest cost to the government is the sad state of the stock market."

In commenting on other aspects of low debt cost considerations, Mr. Heimann said in part: "Current claims on earnings, impediments to the development of reserves to meet obligations and contingencies, changing aspects of production and distribution, the impossibility of charting a course clearly at present or in the immediate future, increasing governmental supervision which is becoming tantamount to control, the relationship of business and government after this emergency has passed, the coordination of our domestic economy with world conditions and needs—these are only a partial catalogue of the broad issues that must be met promptly and courageously. But they provide sufficient answer to any queries as to why the stock market's reactions continue to belie the war-inspired boom that is everywhere else palpably evident."

The problem of how much of the rising debt it is possible to meet with new taxation is a most difficult one, Mr. Heimann says, since "there is no let-up in the upward rate of federal expenditures. In this fiscal year alone we are now scheduled to spend some eighteen billion dollars. Although the Treasury's basic financing program calls for two-thirds of this sum to be met by taxation and one-third by non-bank borrowings, we are not likely to see that fulfilled despite the more severe tax exactions brought about by the 1941 Revenue Act."

In discussing the question of forced loans, Mr. Heimann said in part: "Actually, we will meet only half of our spending through taxes. The rest must be borrowed. And if recourse to such special sources of non-bank funds as sale of defense bonds and tax anticipation notes does not balance the Treasury's requirements, then issuance of obligations for bank and institutional investment may need to be programmed as well as some type of wage-withholding or 'forced loan' policy. Labor opposition to a direct 'wage-withholding' program is a distinct possibility, however, despite the fact that the aim of such a program, unprecedented in this country, would be the curbing of the rising cost of living by deferring consumer spending from the present to the postwar era when our huge industrial capacity will need a vast consumer demand to offset the sharp drop in production of war goods."

In commenting on the conflicting figures about taxes, appropriations, and expenditures, the *Washington Review*, published by the Chamber of Commerce

of the United States states that, "Figures are elusive. Last January, defense expenditures in the current fiscal year were projected at $10.8 billion. Much has since been added, including lend-lease, now counted as a part of defense expenditures. On September 30 the Director of the Budget placed the total figure for the year at $18 billion. Four days before, however, there were used in a committee hearing figures of OPM that placed the value of defense production in the calendar year at least 100% higher. This figure was tossed off with complete nonchalance."

Referring to appropriations, the *Washington Review* states in part that, "Even the total defense appropriations available for the current fiscal year remains to be ascertained. The Director of the Budget as of the end of September, arrived at a net total of $19.4 billion, with $7 billion additional for lend-lease already appropriated and $5,985 billion more pending. By March 1 there are forecast more lend-lease appropriations. Meanwhile, there will undoubtedly be additional appropriations for our own naval and military forces. That all of the appropriations will not be spent in the current fiscal year no one expects. Actual spending of large amounts of the appropriations will go over to the following fiscal year, beginning next July. The portion going over will be highest in the case of funds for lend-lease; for that purpose before the current year is out, next June, appropriations may go to an aggregate of $16 billion or more. But officials in charge of lend-lease forecast only $2.5 billion in expenditures by the end of next June."

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks, 1941		Corresponding Weeks, 1940	
Sept. 6 (Holiday Week)..	84.8	September 7.....	69.3
September 13.....	104.0	September 14.....	85.2
September 20.....	103.8	September 21.....	85.0
September 27.....	105.2	September 28.....	86.7
October 4.....	106.7	October 5.....	85.4
October 11.....(Prelim.)	*103.1*	October 12.....	86.2

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1940	89.1	84.7	82.3	84.3	90.0	92.1	85.3
1941	85.6	89.7	92.2	96.4	98.9	99.5	94.8

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1940	85.1	81.5	85.5	84.9	80.9	85.6
1941	101.8	99.6	...	...	...	...

COMPARATIVE YEARLY SUMMARIES

	1935	1936	1937	1938	1939	1940	1941
Year to Date...	69.1	78.7	85.4	70.2	80.5	86.2	*95.5*
Year Average..	69.9	80.4	79.8	71.5	83.4	85.6	...

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS †

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1936	62	67	67	70	69	70	69	75	78	82	80	74	72
1937	80	86	86	88	85	77	66	74	69	65	55	45	73
1938	54	60	61	57	58	56	57	66	66	70	65	59	61
1939	60	67	71	69	64	67	63	72	74	84	81	71	70
1940	71	70	69	70	76	79	72	74	72	79	77	71	73
1941	75	81	82	83	84	88	86	94	*94*	..	..	..	..

Week ending Sept. 6, 1941—80
Week ending Sept. 13, 1941—98
Week ending Sept. 20, 1941—99
Week ending Sept. 27, 1941— 98
Week ending Oct. 4, 1941—100
Week ending Oct. 11, 1941— 99

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

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Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Adhesive Economies in the Use of Calcium Carbonate Coating Colors*

By H. F. Roderick[1] and A. E. Hughes[1]

Abstract

A general discussion of methods for saving adhesive and economies to be obtained by the coated paper manufacturers is given.

Various laboratories have expended considerable time and money in the past few years on designing a calcium carbonate which would produce certain results when applied as a coating or used as an ingredient of the coating for paper. There are many paper coating grades of calcium carbonate on the market. Some of these have the requisite particle size and other desirable properties for making high-grade coated sheets; however, there are a great many products which, for lack of color, hiding power, finish or other properties, cannot be used satisfactorily in high-grade sheets.

The responsibility for casein demand has been, in a general sense of the word, consigned to the producer of paper-coating pigments and we have found, as have many other laboratories, that it is indeed a difficult undertaking to attempt to lower the adhesive demand of a pigment without altering or sacrificing many desirable properties.

It appears that an improvement in coating properties—e.g., brightness, opacity, smoothness, and gloss—of a given pigment is accompanied by an increase in adhesive demand. This is true of calcium carbonate as of the other pigments.

Some two years ago our Research Department instituted a program, simultaneous with a study of the normal physical properties of calcium carbonate, to ascertain possible reasons for the wide variance in adhesive demands of coating pigments though they are reasonably comparable in particle size. We asked ourselves: is it inherent in the products that their adhesive demands be different or is it that, the pigments being different, they require different treatments to utilize them advantageously. Many other laboratories have been studying this rather fundamental subject.

Assuming the first line of reasoning to be true, considerable work was devoted to producing a high quality paper-coating grade of calcium carbonate having a low adhesive demand. Although the results obtained were discouraging, our research men chose to determine whether a difference in manipulation in the preparation of the pigment dispersion and preparation of the coating color could be the controlling factor.

The importance of getting a complete disperson of a dried pigment has long been recognized in the preparation of coatings, whether they be oil paints, cold water paints, printing inks, paper coatings, or what you will. The subject of "ultimate particle size" has been a question long debated by pigment manufacturers and consumers or coating men.

Although the physicochemical properties of paper coatings are not very well understood, it is reasonable to assume that a thorough disperson of the pigment, approaching that of the ultimate particle size, is highly desirable. Further, it is essential that the adhesive be in intimate contact with the pigment particles, so that a matrixlike arrangement may be formed which has strength enough to undergo the printing operation without breaking. Any of the steps in the processing of the coating color which may affect these factors no doubt have a direct bearing upon the amount of adhesive required for any specified wax test.

The ease with which the surface of various pigments may be wet varies considerably. This property alone controls to a great extent the degree of dispersion and the nature of the contact or bond between the surface of the pigment particles and the adhesive.

Clay and satin white were among the first pigments used for coating paper and it is only natural that methods suitable for their use were developed first. However, within the last few years we note the advent of a number of other pigments in the field, among which is precipitated calcium carbonate. It has been the normal course of procedure to subject these newer pigments to the same treatment in the preparation of the coating colors which has been successful with the older well-established materials. The use of these methods has been a necessity and not a matter of choice on the part of those concerned with the preparation of coating colors. Other methods simply were not available and it has required considerable time for their development.

In the meantime it must be kept in mind that the higher adhesive demand as shown for some pigments, by methods suitable for clay or other pigments, is not necessarily a deficiency in the product but in the methods which we have been using in the past. An

* Presented at the Fall Meeting of the Technical Association of the Pulp and Paper Industry, Ann Arbor, Mich., Sept. 16-19, 1941.

[1] Member TAPPI; Research Laboratories, Michigan Alkali Company, Wyandotte, Mich.

extended study by our laboratory has shown that certain methods, both chemical and physical, are more suitable for the preparation of coating colors from precipitated calcium carbonate than the generally used methods of many present coating mill practices. Various other laboratories confirm these findings.

In the development of these methods, one must be concerned not only with procedures which would enable a reduction in the adhesive demand of the calcium carbonate alone, but due consideration must be given to their possible use with clay and other pigments, at least to the extent of their suitability for preparing coating colors from blends of calcium carbonate, clay, and satin white. The methods developed up to the present time concern primarily the adhesive savings with calcium carbonate, and, more particularly, precipitated calcium carbonate used in high-grade sheets. When the methods are used for blends containing calcium carbonate and clay or calcium carbonate, clay, and satin white, the reductions in adhesive demand are nearly proportional to the amount of calcium carbonate in the blend.

Some Factors Controlling the Adhesive Demand

Aside from the nature of the pigment, there are a number of factors which influence the adhesive demand of the coating mixture. Before discussing the methods employed in preparing the coating color, it may be well to mention some of these factors.

Raw Stock

The weight, degree of sizing, fiber, and processing of the raw stock all have an important bearing upon the amount of adhesive which must be incorporated into the coating color in order to obtain a given bonding strength in the finished sheet. It is possible to select a raw stock for use with a given pigment combination which will result in a considerable reduction of the amount of adhesive required for a definite wax test.

Dispersing the Adhesive

Considerable evidence has been accumulated on the method of dispersing the adhesive to be used with various pigments. At present, smaller amounts of alkali are used for dispersing casein which is to be used with clay than for that which is to be used with satin white. The amount is reduced still further for use with certain blended pigments. With respect to calcium carbonate, it may be stated that methods have been devised for the disperson of the adhesive whereby the adhesive requirement for a 5 to 6 wax test is reduced 40 to 50%. Casein used for satin white requires a different cutting technique from that used for clay in order to obtain best results, and, by the same token, by using the proper method in dispersing the casein, it is possible to reduce the adhesive demand of a high-quality paper-coating grade of calcium carbonate to that of average domestic clay.

Blending and Sizing Together

It has been pointed out previously that the actual adhesive requirement of a blend of two or more pigments is not always the arithmetic average of the adhesive demands of the individual components of the blend. In fact, the amount required by some blends is far less than the calculated figure. Blends prepared from precipitated calcium carbonate and clay serve well to illustrate this principle. Normally one would expect that the various blends prepared from these two pigments would require an amount of adhesive approaching that of the calculated figure, depending upon the ratio of the quantity of each pigment in the blend. Such is not the case in this particular instance.

It is found that the 50-50 blend is not in accord with the calculated amounts required for any given wax test but, rather, tends to approach that required for clay itself. Blends carrying only 10 to 25% of precipitated calcium carbonate require almost the same amount of adhesive as does the clay, and for wax tests above 8 and 9 the requirement is less than it is for either of the individual components.

Not all pigments exhibit this nonarithmetic adhesive demand when blended which in effect amounts to an adhesive saving. The striking example just given for precipitated calcium carbonate and domestic clay is mentioned in passing merely for the purpose of stimulating interest in behalf of greater possibilities which lie ahead of us in this particular field.

Dispersing the Pigment

Moving a step further in the process of preparing the coating color, we come to the preparation of the various pigment slips by water dispersion, augmented by small amounts of wetting and dispersing agents before the final addition of the size. This phase of the process, usually referred to as the "make-down", offers an enticing field for the exploration of possible means of effecting adhesive savings. Publications by several different laboratories within the last year or so have touched upon various aspects of these possibilities. Our investigations carried out within this field show that, by a departure from common practices of preparing the slip, the required amount of adhesives for calcium carbonate may be reduced as much as 30 to 40% and in some instances as much as 50%.

The work done in the laboratory in this connection was extended to several types of dispersion apparata, including the colloid mill, roll mill, kneaders or dough mixers, etc., and results were obtained by manipulating each type of equipment in various ways. The results given are the best results obtainable with the most desirable equipment, manipulated in the best way to give maximum casein savings and yet retain the desirable sheet characteristics. While such advantages as a higher solids content and a slight improvement in brightness and opacity are obtained by these methods, the adhesive saving remains the paramount feature.

In addition to the rather lengthy investigation involving studies of numerous types of equipment and methods of manipulation, the project was extended to the various adhesives commonly used. It was encouraging to find that the reduction in amount of adhesive was obtained regardless of the type of adhesive used.

Conclusion

Because of the great number of variables encountered in the various coating mill practices, it is impossible to present any reasonable amount of data which would be of direct application to a large number of mills. Therefore this paper has been devoted to a general discussion of the various methods for adhesive saving and to indicate to you the many possibilities for economy and improvements in sheets which may be achieved by simple means within the reach of every coating mill man.

Consistency Tests and Packing Characteristics of Pulps*

By A. H. Croup[1] and E. W. Samson[1]

Abstract

A consistency tester, designed to determine the consistency of an unbeaten pulp suspension in less than 5 minutes with an accuracy better than 2%, is described. A mechanical property of pulp, called pulp packing density, is described.

The tester is based on the principle of measuring the volume of a pulp pad formed by squeezing water out of a definite volume of stock under a definite pressure.

Pulp packing density is determined from the tester reading and the dry weight of the pad of pulp tested.

Mill investigations and control work require frequent determinations of the consistency of the stock used. The dry test sheet method of consistency determination is time-consuming and laborious and is frequently too slow for control work. An instrument is desirable by which the mass of fiber in a given volume of stock can be determined quickly and with a fair degree of accuracy.

A consistency tester has been designed that will determine the consistency of an unbeaten stock suspension of spruce pulp in less than 5 minutes with an accuracy better than 2%.

Further, as a result of the development of the tester, a newly defined mechanical property of pulps, called *pulp packing density*, has been investigated to some extent. The study has revealed some interesting peculiarities of pulp packing density in relation to fiber lengths, fiber origin, bleaching, pressing, drying, and beating.

The paper is divided into two parts: Part I dealing with the consistency tester as a measuring instrument and Part II discussing some results on pulp packing properties as revealed by the tester.

PART I.

The Hammermill Consistency Tester[2]

In devising the consistency tester, the possibility was considered of controlling the mat-forming propensities of draining stock in such a way as to derive a measure of consistency from the mat thickness in a convenient instrument. There developed the idea of using the volume of a pulp mat out of which the water had been squeezed under a definite pressure through a screen. If the manner and amount of packing of the fibers were sufficiently constant, the mass of fibers in a mat could be determined from its volume, and the consistency of the initial stock could be derived. By adding an appropriate pressure it was hoped that variations in volume of the pulp mat due to variations in different samples of pulp might be minimized sufficiently to allow accurate estimates of consistency, at least within a given type of pulp, with similar history.

Experiments were tried using a cylinder to contain the pulp suspension, a screen to permit the water to drain off, and a weighted piston to apply a definite pressure to the pulp. The method was found to be practicable. The requirements for good operation and a final satisfactory design were worked out.

Design and Construction

The details of the tester construction are given in Figs. 1 and 2. Stainless steel construction throughout is preferred to avoid corrosion by mill liquids and gases. (Brass quickly becomes sticky with corrosion products in mill use.) To avoid individual calibration of units it is desirable to make all units to identical specifications and dimensions.

The cylinder A is constructed from 1⅝ inches OD by 16 gage tube. The screen B is a perforated plate 1/64 inch thick having 625 (0.020 inch diameter) holes per square inch, and is soldered to the plug C into which is screwed a ¼-inch pet cock J, and the assembly is mounted in the end of the cylinder. The volume of the cylinder is 454 cc.

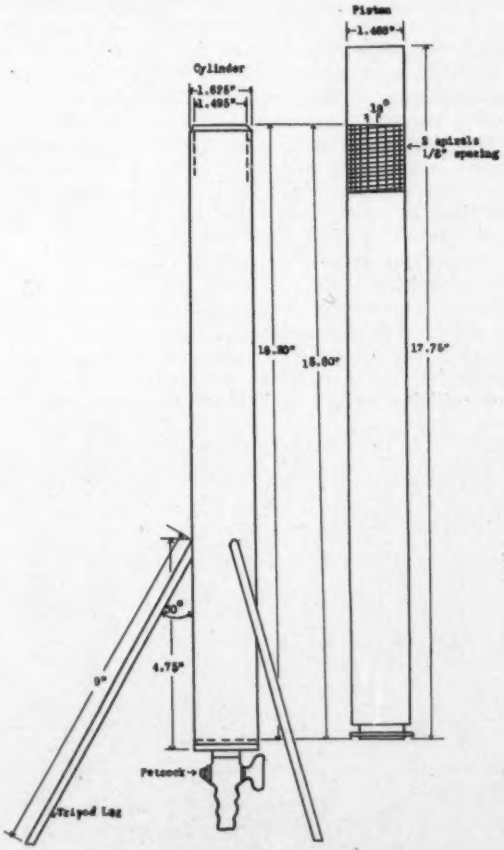

FIG. 1
Standard Construction of the Hammermill Consistency Tester

[*] Presented at the Fall Meeting of the Technical Association of the Pulp and Paper Industry, Ann Arbor, Mich., Sept. 16-19, 1941.
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[2] Patent applied for.

The piston D is constructed from 1½ inches OD tube, maintained to a diameter of 1.468 inches thus providing wall clearance of about 0.012 inch between piston and cylinder. A plug E drilled and tapped for ⅜-inch screw is soldered into the end of the piston and a plate F shaped for holding a rubber sealing ring G in place is in turn fastened to the plug by a hollow ⅜-inch screw H which is provided with a screen similar to that used in the cylinder. The piston assembly is loaded with lead so that the total weight is 4700 ± 5 grams. Two 3/32-inch holes I are drilled through the piston wall into a space between the plug and the lead to provide an air vent through the hollow screw and screen for air trapped under the piston. This trapped air must be vented to avoid a sudden drop of the piston when the water seal has drained away which would unduly compress the pulp pad.

The rubber sealing ring is to be made from 96% pure red gum rubber and is to be 0.071 ± 0.001 inch thick, with an outside diameter of 1.540 ± .005 inch which is 55 mils larger than the cylinder and an inside diameter of 0.700 inch.

The method of producing a satisfactory seal between the piston and cylinder was a subject of considerable experimenting, of which the rubber ring described above is the result. The sealing member must be tight enough to prevent escape of fibers past the piston, must have low and uniform friction resistance against the cylinder wall, must not be subject to bindings by fibers, must be flexible enough to take up the slight normal variations in diameter or shape of the cylinder wall at various levels without change of friction, must be reasonably long-lived and replaceable, and must be constructible with sufficient uniformity to permit replacement without changing the instrument calibration. The piston and seal assembly should be reasonably flat on the bottom.

The theoretical static pressure that the piston is capable of exerting is 5.93 p.s.i. By actual measurement the pressure was 5.88 p.s.i. The difference is less than 1% and shows that the friction produced by the rubber sealing ring is negligible.

A scale for measuring pad thickness, based on a pair of spirals each of 4 lines per inch, spaced ⅛ inch apart vertically, is engraved completely around the piston, thus making 8 scale lines per inch. Eleven straight lines 18 degrees apart are engraved across this spiral and parallel to the axis of the piston, thus utilizing only one half of the area engraved,

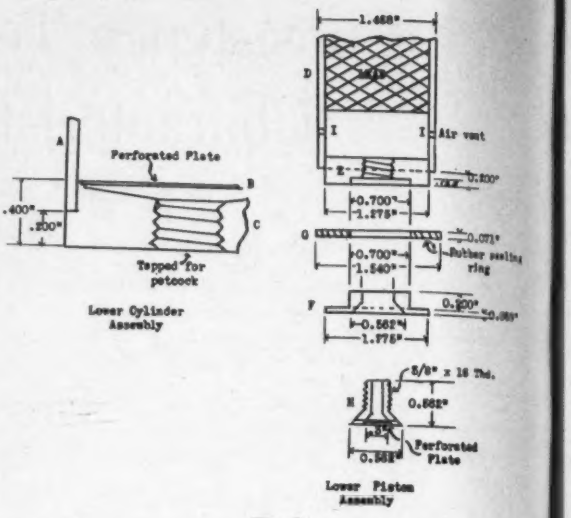

FIG. 2
Detail Drawing of Lower Cylinder and Piston Assembly

and enabling the observer to read the entire scale from practically one position. The straight lines are numbered from 0 to 10, and the spiral lines are numbered, where they cross the zero straight line, from 0 to 12, constituting a scale that can be read from 0 to 120. The top of the cylinder which has a 45-degree bevel serves as the reading indicator edge, reading zero when the piston is inserted in the empty cylinder. In reading the scale, the point is observed where the spiral line passes the edge of the cylinder, reading vertical divisions down to this spiral and then reading horizontal divisions to the line nearest this point. If desired, a third figure may be estimated.

Two testers, designated as Models 8 and 9, have been constructed according to these specifications and their performance is described below.

Operation and Calibration

To make a measurement, the pet cock is closed and the cylinder is quickly filled with stock suspension, freshly stirred, of consistency not greater than 1%. It is advisable for accurate filling to allow some stock to overflow the cylinder. The pet cock is then opened, allowing water to start draining, and the

TABLE I.—UNBLEACHED SPRUCE
(Moisture-free basis)

Readings	Vernier Scale 0	1	2	3	4	5	6	7	8	9	Proportional Parts .1	.2	.3	.4	.5	.6	.7	.8	.9
MAIN SCALE 0	0	.019	.037	.055	.073	.091	.109	.121	.139	.152	2	3	5	7	8	10	12	14	15
10	.169	.184	.200	.216	.229	.244	.259	.272	.288	.303	1	3	4	6	7	9	10	12	13
20	.318	.329	.343	.357	.369	.381	.394	.406	.418	.430	1	2	4	5	6	7	9	10	11
30	.443	.455	.467	.479	.492	.504	.516	.529	.541	.553									
40	.565	.577	.590	.602	.614	.626	.639	.651	.663	.675	Same								
50	.688	.700	.712	.724	.737	.749	.761	.773	.786	.798									
60	.810	.822	.835	.847	.859	.871	.884	.896	.906	.920									
70	.933	.945	.957	.969	.982	.994	1.006	....	....	....									

TABLE II.—BLEACHED SPRUCE CONSISTENCY, %
(Moisture-free basis)

Readings	Vernier Scale 0	1	2	3	4	5	6	7	8	9	Proportional Parts .1	.2	.3	.4	.5	.6	.7	.8	.9
MAIN SCALE 0	0	.018	.036	.054	.072	.090	.107	.123	.141	.159	2	4	5	7	9	11	12	14	16
10	.177	.192	.208	.222	.239	.255	.270	.288	.301	.318	2	3	5	6	8	10	11	13	15
20	.338	.354	.367	.381	.394	.408	.421	.431	.444	.458	1	3	4	5	7	8	9	10	12
30	.471	.485	.498	.512	.525	.539	.552	.566	.579	.593									
40	.606	.620	.633	.647	.660	.674	.687	.701	.714	.728	Same								
50	.741	.755	.768	.782	.795	.809	.822	.836	.849	.863									
60	.876	.890	.903	.917	.930	.944	.958	.971	.984	.998									

piston is inserted as soon as possible to avoid dropping the piston with an impact on the pad. The fall of the piston occurs in two stages: the first stage is rather rapid while the bulk of the water is draining off, and the second is rather slow compressing the fibers gradually into a pad. To wait for the "ultimate" settling point would be inconvenient in ordinary use. Therefore, we have standardized on a time of 3 minutes for unbeaten spruce pulp and 15 minutes for beaten pulps at which the scale reading should be made. A tolerance of plus 30% or minus 15% may be allowed on these times without appreciable errors. If the piston is removed immediately, the pad follows the piston, coming to the top of the cylinder and is easily picked out.

For a consistency test, the consistency is then read from a calibration curve or table. For calibration, however, tests hereafter called calibration tests are made, in each of which a dry test consistency of the original stock is also obtained from the pad. The tester readings and corresponding dry test consistencies, from a series of calibration tests over a range of consistencies on a number of samples of the type of pulp in question, are plotted and a smooth calibration curve is drawn.

The calibrations for unbleached and bleached spruce sulphite pulps are given in Tables I and II and shown in Fig. 3.

The term "consistency" as used throughout this work is defined as the moisture-free weight of fiber per unit weight of pulp suspension.

For stock below 0.1% consistency, accuracy is better attained by measuring a larger volume in a graduate cylinder, pouring it all into the tester before inserting the piston, to obtain a readily measurable pad, and calculating the consistency. For stock above 1% consistency, accurate sampling requires a larger measured volume of sample because of clotting. The sample is diluted in a definite ratio to bring it to below 1% consistency. The consistency of the diluted sample is measured in the ordinary way and the result is multiplied by the dilution factor.

Accuracy of Measurement

The calibration curves shown in Fig. 3 were made from 59 tests on 10 samples of unbleached and 32 tests on 6 samples of bleached spruce sulphite.

The deviations of points from the curve arise from three sources: true variations in the pulp, sampling errors, and errors inherent in the tester itself. In Table III are given the magnitudes of the probable deviations. Those based on the total data should be more accurate than the others for which all the data could not be used. It is worthy of note that the true variations in the pulp are responsible for only a reasonable fraction of the total deviations.

In general, deviations become errors when the smoothed curve is used in a consistency test. (In this paper deviations and errors are expressed as fractions of the measured quantity. Half the points representing a series of measurements are expected to deviate from the smoothed curve by less than the probable deviations.)

To determine the agreement of Models 8 and 9 with each other, 33 pairs of parallel measurements on various pulps were made. The consistencies for Model 9 averaged 0.74% higher than those for Model 8 at corresponding scale readings; however, the measured difference is barely significant. Thus, it seems desirable but not essential to calibrate testers individually.

One of the testers, before replacing the dry test in certain routine control laboratory tests, was checked against the dry test. Ninety-three compari-

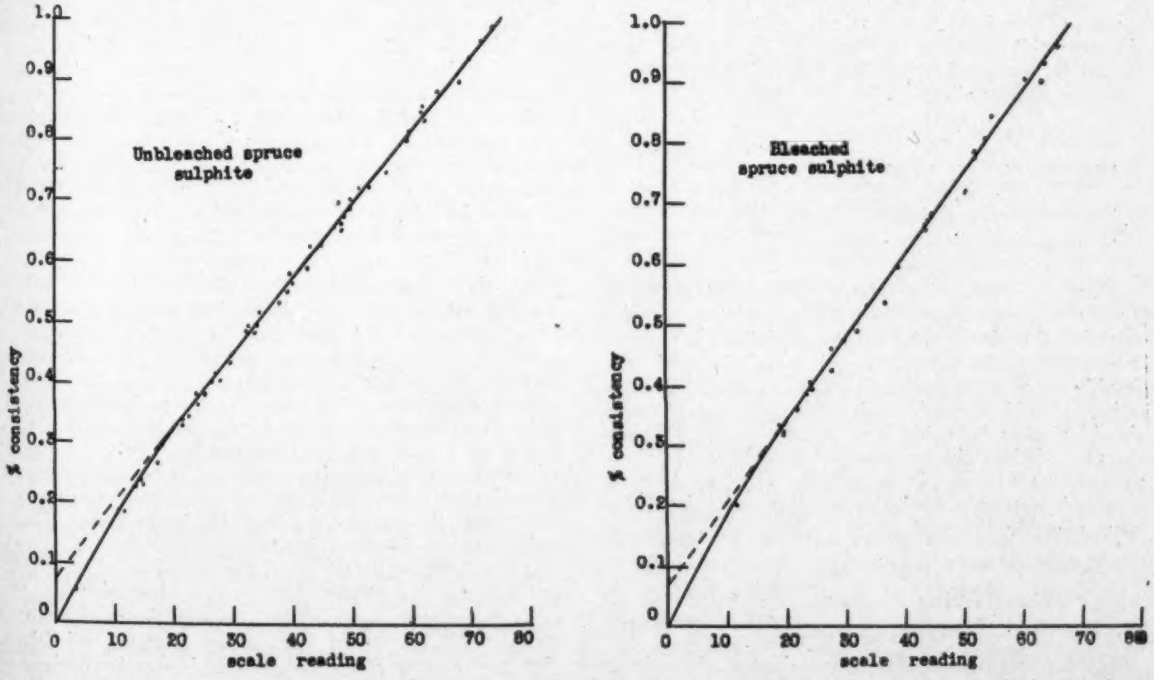

Fig. 3
Standard Calibration Curves for the Hammermill Consistency Testers

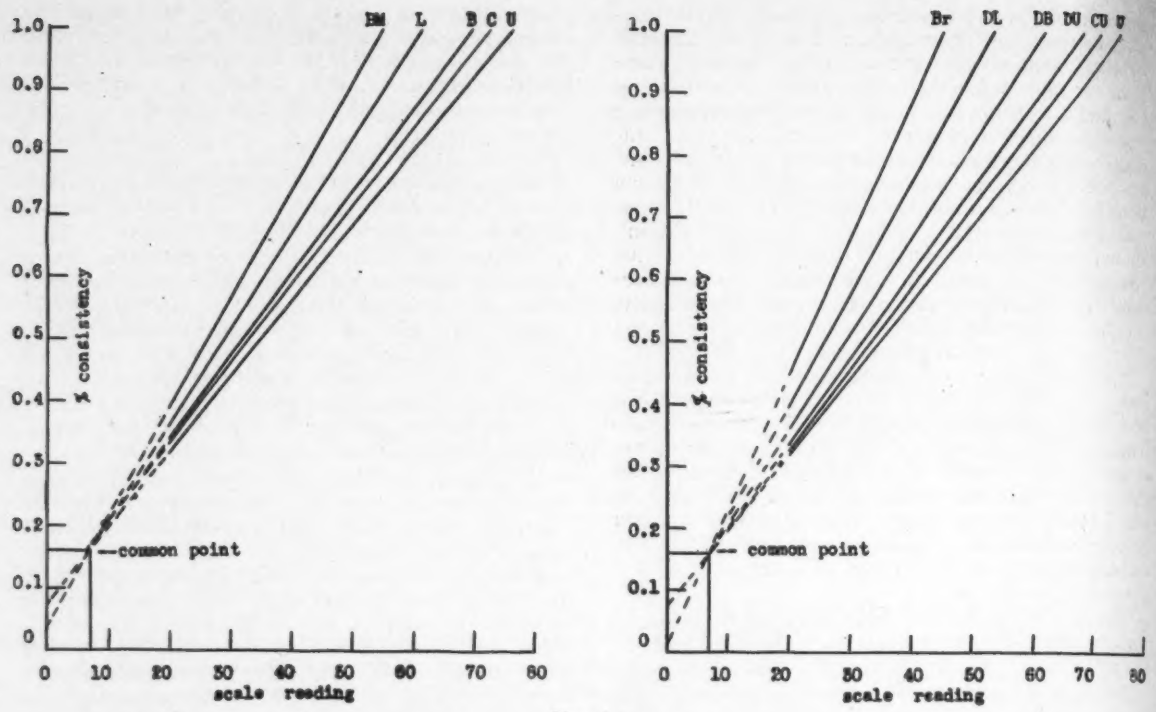

FIG. 4

Packing Characteristics of Some Spruce Pulps. U—Unbleached and Laboratory Bleached. C—Partially Bleached. B—Fully Bleached. L—Screw and Wet Press Machine Bleached and Mill Beaten. BM—Ball Mill Beaten. CU—Centrifuged Unbleached. DU—Air-Dried and Moisture-Freed Unbleached. DB—Air-Dried and Moisture-Freed Bleached. DL—Air-Dried and Moisture-Freed Press Machine Bleached Stock. Br—Broke from the Broke Beater.

sons each on two kinds of stock, of consistencies about 3.3 and 5% gave probable random deviations between the average of a pair of tester readings and a dry-test reading of 2.8 and 2.2%, respectively. Because each dry test was made on only a 50-gram specimen of stock and each consistency tester reading on only a 150-gram specimen diluted to 1500 cc., the probable random deviations are smaller than would be expected from the data of Table III on sampling errors alone.

TABLE III

	Unbleached, %	Bleached, %
Probable true variation in the pulp	1.0	1.7
Probable sampling errors	1.4	1.6
Probable inherent in the tester itself	0.8	0.9
Probable consistency deviation (above combined)	1.9	2.5
Probable consistency deviation (from total data)	1.4	1.7

To assure reasonable accuracy in consistency tests, a given calibration curve should be used only on pulp samples that have received precisely similar treatment within the limits of mill precision and preferably on a single tester. Variations from this procedure should be made with caution. A calibration should always be made with a number of different samples of the pulp for which it is to be used. These precautions are simple in routine practice, because repeated tests are made on similar pulp from the same place in the mill.

PART II.

The Packing Properties of Pulp

NATURE OF PULP PACKING DENSITY

The consistency tester measures directly the volume or bulk of the pulp put into it, under a definite "squeezing" pressure. (The word "squeeze" is used herein to imply the application of simultaneous pressure and drainage, in contradistinction to the application of pressure without drainage, or hydrostatic pressure.) This measurement has been used as the basis for determining consistency, but we have observed that the calibration curves for different pulps may differ considerably. The curves are all straight lines above a reading of about 25 on the tester, and below 25 they curve downward to meet the origin. This is shown in detail in Fig. 3 for unbleached and bleached spruce sulphite. The straight line portions of the curves for a variety of pulps are shown as solid lines in Fig. 4. They also must curve downward to pass through the origin. If the number of grams of moisture-free fiber per cubic centimeter were the same throughout the tester pad and for all consistencies of initial stock, for a given pulp, then the curves would all be straight lines through the origin. The simple interpretation of the actual shape is: the fiber packing is uniform except near the ends of the pad where it is somewhat greater, and where the more rapid rise of the curve at low consistency occurs because the pad is thin and only the excessively packed portion exists.

Let us define *pulp packing density* as the number of grams of moisture-free fiber per cubic centimeter, packed under the conditions of the tester, measurement, near the middle of a moderately thick pad. The pulp packing density (hereafter referred to simply as packing density) then is 1260 grams per cc. times the slope of the straight line portion of the curve.

To determine the packing density fundamentally requires at least two calibration tests at suitably chosen different consistencies, but it can be derived in practice from a single calibration test at a consistency high enough to be on the straight line por-

tion of the curve, preferably above 0.5%. This simplification arises from another property of the curves, namely, that the straight line portions of the curves for all the pulps measured, when produced, pass through a common point (Fig. 4) to an accuracy as good as our present data. This common point then replaces the second measurement. The common point, determined from our two most reliable curves, the bleached and unbleached spruce sulphite curves of Fig. 3, is: scale reading $r = 7.0$, consistency $c = 0.161\%$ $(= 0.00161)$. The formula for calculating packing density, d, from a calibration test giving a reading r, and a dry test on the pad giving a consistency c, is:

$$d = \frac{c - 0.00161 \times 1260 \text{ g./cc.}}{r - 7}$$

A simple rough physical picture of the meaning of the common point is that the excessive packing near the ends of the pad takes place in a definite volume of space, represented by the reading 7.0, in which the fibers are packed to a definite rather high density, represented by the slope of the line through the common point and origin, which is the same for all pulps.

The packing density determines the straight line portion of the calibration curve and vice versa.

In the following sections are some interesting data on packing densities of sulphite pulps which have undergone various stages of processing. *(See* Fig. 4 and Table IV.)

TABLE IV.—PULP PACKING DENSITIES ON SULPHITE STOCK, GRAM PER CC.

Unbleached Spruce	0.154
Unbleached Poplar	0.155
Fractionated Unbleached (Bauer-McNett classifier)	
Original sample	0.155
Retained on 20-mesh	0.156
Retained on 35-mesh	0.156
Retained on 65-mesh	0.159
Retained on 150-mesh	0.154
Laboratory Bleached	0.151
Partially Bleached	0.162
Unbleached Centrifuged	0.165
Experimentally Cooked 100% Spruce (centrifuged)	0.169
Expermentally Cooked 100% Balsam (centrifuged)	0.166
Bleached Spruce	0.170
Bleached Poplar	0.168
Bleached Centrifuged	0.177
Screw and Wet Press Machine Bleached Spruce	0.189
Stock from Press Machines Bronze Bar Beaten	0.191
Air-Dried and Moisture-free Unbleached	0.171
Air-Dried and Moisture-free Bleached	0.191
Air-Dried and Moisture-free Press Machine Bleached	0.224
Unbleached Ball Mill Beaten to 37% Slowness	0.223
Centrifuged Laboratory Bleached Ball Mill Beaten to 37% Slowness	0.221
Centrifuged Bleached Ball Mill Beaten to 37% Slowness	0.227
Broke from Broke Beater	0.281

Effects of Fiber Size and Origin

Fiber Size Fractionation: To determine the variation of the packing density with fiber size in the same pulp, a sample of unbleached spruce sulphite pulp was fractionated in a Bauer-McNett fiber classifier, and packing density tests on the original and each fraction were made. All the results were plotted and formed a single smooth calibration curve from which the probable deviation of a point was only 0.3%. Thus the fiber-length fractions must all have the same packing density as the original whole pulp.

Different Origin of Fibers: Tests on one unbleached poplar sulphite sample gave a packing density of 0.155 grams per cc. only 0.65% greater than for unbleached. Tests on one bleached poplar sulphite sample gave a packing density of 0.168 grams per cc. only 1.2% less than for bleached spruce. Experimentally-cooked 100% balsam pulp and similarly cooked 100% spruce pulp showed an average difference of packing densities of only 1.5% in two comparisons. (*See* Table IV.)

The probable deviation for samples of the spruce pulp alone was in each case about as large as the observed deviation of the compared pulp. Thus, poplar and spruce pulps, treated alike, were alike in packing characteristics. The fibers differ greatly in size so that this result is a striking one. It then is not surprising that balsam also appears to have like packing characteristics.

The results so far strongly suggest, but do not prove, the generalization that the packing characteristics of a pulp are independent of the size and the origin of the fibers so long as the processing has been similar. It will, of course, often be difficult to say what constitutes "similar" processing.

Effects of Squeezing Action

Simple and Repeated Squeezing: After making a packing density test on unbleached spruce the pad was gently removed, broken up in water, put in the tester again, and its packing density was redetermined. The process was repeated several times. The packing densities successively, were: 0.154, 0.160, 0.169, 0.176, and 0.175 gram per cc., increasing 15% and then becoming constant. The same experiment was performed on bleached spruce which was then briefly subjected to a squeezing pressure of 5000 p.s.i. in a hydraulic press and two more packing density tests were made. The successive packing densities were: 0.170, 0.176, 0.186, 0.188, and 0.188 gram per cc., increasing 10% and then becoming constant; then after the 5000 p.s.i. squeeze, 0.242 and again 0.242, a further increase of 29% unchanged by the further operations. Thus it appears: (1) that the packing density increases with squeezing pressure; (2) that after a high squeezing pressure, a moderate pressure produces no effect; (3) that successive applications of moderate squeezing pressure cause successive increases of density, tending rapidly toward a limit which depends on the pressure.

Screw Press and Wet Press Bleached Stock: High-consistency bleached stocks from screw and wet presses had about the same packing density, 0.189 gram per cc., an increase of 11% over the unpressed stock, due to the squeezing action of the presses.

After this, as corresponding to previous observations, the smaller squeezing action taking place in the tester measurement produced no further change in packing density.

Laboratory Centrifuging: Laboratory basket centrifuging gave packing density increases of 8.3% on unbleached and 4.5% on bleached spruce. Thus appreciable squeezing action in the centrifuge is indicated.

Effect of Hydrostatic Pressure

A sample of stock at about 0.3% consistency was subjected to a static pressure of about 80 p.s.i. for about 10 minutes. The packing density was found to be unchanged. Because the fibers are saturated and permeable to water, hydrostatic pressure builds up inside as well as outside the fibers and no distortion of the fibers occurs; hence, no effect similar to that of squeezing action is to be expected.

Effects of Beating

Mill Beating: Beating and jordanning play an important part in papermaking, profoundly affecting the slowness of the stock, sheetmaking characteristics and strength properties, and it might well be ex-

pected that the packing density would, like the slowness, increase with the degree of beating. On the contrary, however, a dozen density tests over a range of consistencies on several sulphite furnishes showed that the packing densities were unchanged by the bronze-bar beating or jordanning. The pulps tested were bond furnish beaten but not jordanned, bond furnish beaten and jordanned, three samples of a single furnish beaten to slownesses of 21.1, 38.5, and 53.7%, respectively, and a furnish containing talc (the pulp packing was practically unaffected by the presence of fillers in normal amounts). The packing density for all these beaten stocks was alike, averaging 0.191 gram per cc., only 1.3% greater than for unbeaten. Thus, mill beating and jordanning produced no significant change.

Laboratory Ball Mill Beating: In contrast with bronze-bar beating, ball mill beating produced a considerable increase in packing density. Three samples were ball mill beaten to a slowness of approximately 37%. The packing densities before and after beating for the pulps tested were: unbleached spruce, 0.156 and 0.223 gram per cc., a 43% increase; bleached centrifuged spruce, 0.176 and 0.227 gram per cc., a 29.5% increase; laboratory bleached centrifuged spruce, 0.165 and 0.221 gram per cc., a 33.5% increase. Although the variations in packing density before beating were about 12%, the values after beating were all within 2.6% of each other.

The original expectation that beating would increase the packing density, because of drastic mechanical action on the fibers, was strikingly contradicted by the bronze-bar beating tests, and strikingly confirmed by the ball mill beating tests. The slowness test does not distinguish the effects of the two types of beating. The density test very positively distinguished them. The slowness and density tests apparently measure different types of *beating* action. These results strongly suggest that the packing density test may provide a new and practical index of beating action, indicating the type of beating that takes place.

To explain these phenomena we may observe that cutting and bruising of the fibers are the two obvious effects of beating. Earlier it was found that variation in fiber size caused no change in packing density. Cutting, therefore, will not affect it either, but cutting does increase the slowness of the pulp. Bruising the fibers increases their flexibility and will result in an increase of packing density; bruising also increases the slowness. The packing density then is presumably a measure of the bruising action in beating, isolated by the test from any cutting action that may take place, while slowness reflects both cutting and bruising actions.

The comparison by means of density tests of bronze-bar and ball mill beating then would appear to indicate that the bar beating involved practically no bruising action, whereas, ball mill beating involved a great deal. This bruising action is somewhat similar in nature to the effect obtained in squeezing action which also was found to be reflected in the density tests.

The packing density tests do not reflect the cutting in a beating operation. Whether a combination of density and slowness tests could yield such information is unknown. Fiber classifying, however, will isolate the cutting factor, and together with the packing density test might provide a more complete picture of beating than any tests in present use. The picture would not be entirely complete, because the type of action that develops strength in the paper may be neither cutting nor bruising, though it may be associated with either or both and may not be producible without simultaneous bruising action.

Effects of Drying

Drying increased the packing density over that of the corresponding wet pulp for every pulp tested: for unbleached spruce 11.4%; for bleached spruce 11.8%; for wet press machine bleached spruce 17.1%, repulped broke 47%. Broke has undergone several stages of squeezing in addition to drying so that it is clearly the most drastically treated of all the pulps tested, as reflected in the results.

Effects of Bleaching

The packing density of spruce pulp from an intermediate point in mill bleaching was about 5% higher than that of unbleached, and fully mill bleached stock showed a 10.3% increase over unbleached stock. But, packing density tests before and after laboratory hypochlorite bleaching of unbleached and partially bleached stocks showed no appreciable change.

If hypochlorite bleach produces no appreciable density change, it seems improbable that the other chemical processes do either. Why, then, did mill bleaching processes give increases of about 5% in packing density both in the earlier and the later stages? These results may be tentatively explained as due to squeezing effects taking place along with bleaching in the mill, resulting from pumping, circulating, and thickening. Superficially, it does not appear likely that such action would have more effect than the action in the mill beater which are shown to have no significant effect at all. However, if the suggestion is correct, the pulp entering the mill beater had had squeezing processes in bleaching and in press machines, raising its packing density about 10% and then 11%, or 22% altogether. Now we have shown that successive squeezing actions gave rapidly decreasing effects on packing; hence, even if beating has a similar squeezing action, it may not result in any further change of packing density. Thus, it seems likely that the packing density effects of the mill bleaching processes are largely due to squeezing.

Conclusions

The inconvenience of making measurements of consistency and amounts of pulp has led to the development of an instrument for measuring consistency simply and quickly. The instrument is based on the principle of measuring the volume of a pulp pad formed by squeezing water out of a definite volume of the stock under a definite moderate pressure. To permit translation of the volume measurements into consistency, a calibration curve or a corresponding table of figures is used.

It has been found desirable, but not always essential, to restrict the use of a given calibration curve to samples of similar origin and processing history such as the pulp from a given sampling point in the mill. Under these conditions, the probable error of consistency measurement on unbleached spruce pulp is 1.4% and on bleached spruce pulp is 1.7%. The consistency of unbleached and bleached poplar pulp may be read from the corresponding calibration curves on spruce pulp with little if any loss in accuracy. In general, the errors are slightly greater

for pulps from later stages in mill processing.

The construction details of the consistency tester have been standardized so that different units will differ little if at all in calibration. For highest accuracy, however, units should be individually calibrated. The units are made of stainless steel to give durability and freedom from wear and corrosion.

Pulp Packing Density

A newly defined mechanical property of pulps, called *pulp packing density*, has been investigated to some extent. The packing density can be determined from the consistency tester reading and a dry weight on the pad of pulp from the tester. The packing density along determines the straight line portion of consistency versus reading curve for the pulp, within the errors of the experiments, and vice versa.

It appears probable that the packing density of a given pulp sample is substantially changed only by squeezing or drying processes, both of which cause an increase. Thus, it was increased by the screw and wet press machines, considerably by ball mill beating, by laboratory centrifuging. It was unaffected by bronze-bar beating and jordanning, by laboratory hypochlorite bleaching, and by hydrostatic pressure. An increase during mill bleaching seems at present to be most likely a result of associated squeezing effects. The considerably different fiber-length fractions of a pulp from the Bauer-McNett classifier all had the same packing density as the original stock. Poplar and spruce pulps, treated alike, have like packing characteristics. Balsam unbleached is also similar.

Unbleached pulp had the lowest density measured, averaging 0.154 gram per cc., while ball mill beaten stock gave about 0.223 gram per cc., and beaten broke gave the highest density of all, 0.281 gram per cc.

The packing density was increased as much as 43% by ball mill beating; not at all by ordinary bronze-bar beating. From this, the lack of influence of fiber length, and the positive influence of squeezing action, it appears that the packing density measures the effect of bruising action in beating and is not at all affected by cutting action. Thus, packing density may well prove to be a new and useful index of the type of action on the fiber occurring in the beating operation.

Causes Rather Than Effects Investigated

The causes rather than the effects of packing density have so far been investigated. The available time has severely limited the scope of the investigations and the amount of data collected. The results, however, would seem to justify a much more comprehensive and accurate survey of the field of information derivable from packing density measurements.

Three Fundamental Uses

The instrument described has the capacity for broad and useful service in both routine and experimental work on pulp. It has three fundamental uses, for measurements of amount of pulp, consistency, and pulp packing density.

Acknowledgment

We acknowledge with the greatest appreciation the assistance of E. L. Rastatter, Physics Department technician, in the experimental work on this project.

Studies on the Desulphonation of Calcium Lignosulphonate with Lime*

By I. A. Pearl[1], A. Bailey[2], and H. K. Benson[2]

Abstract

In a recent study (1) the preparation of desulphonated lignin from calcium lignosulphonate by treatment with sodium hydroxide was reported. The optimum conditions for desulphonation of calcium lignosulphonate with sodium hydroxide were determined for an alkali concentration of 35 to 40% and a calcium lignosulphonate-sodium hydroxide ratio of 1:1.

The investigation reported here, in which the desulphonation of calcium lignosulphonate with lime was studied, is a continuation of the earlier work. The optimum conditions of temperature and time were determined for a calcium lignosulphonate-lime ratio of 1:1 and a lime concentration of 10 to 15%.

It was desired in this study to prepare a desulphonated lignin from calcium lignosulphonate or sulphite waste liquor solids by the use of lime.

The treatment of sulphite waste liquor with calcium hydroxide was reported by Grafe *(2)* in his first investigation of vanillin production from waste liquor by alkaline treatment. He heated the waste liquor with lime at 180 deg. C.

Kürschner and Schramik *(3)* have reported the use of lime and sodium sulphate as a substitute for the more costly sodium hydroxide in the preparation of vanillin from sulphite waste liquor when heated under pressure.

The lime treatment of sulphite waste liquor at relatively low temperatures and at atmospheric pressure, the Howard process *(4)*, results in little desulphonation of the calcium lignosulphonate. Howard *(5)* reported the preparation of partially desulphonated lignosulphonic acids which are useful as fillers and pigments by the steam pressure cooking of sulphite waste liquor with an excess of caustic lime.

Calcium Lignosulphonate

The sulphite waste liquor used in this investigation was of hemlock origin, and was kindly furnished by the Puget Sound Pulp and Timber Company of Bellingham, Washington.

Calcium lignosulphonate was prepared in the same

* Presented at the Fall Meeting of the Technical Association of the Pulp and Paper Industry, Ann Arbor, Mich., Sept. 16-19, 1941.
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[2] Member TAPPI; University of Washington, Seattle, Wash.

manner as that described by Pearl and Benson *(1)* by carefully precipitating the inorganic portion with lime, separating the inorganic fraction, and fractionally precipitating the calcium lignosulphonate from the aqueous solution by the use of ethanol. The largest fraction of the sulphonate was further purified by dissolving in water and repeating the precipitation processes. This purified calcium lignosulphonate was used in all the following experiments. It had the following analysis: ash, 8.99%; sulphur, 6.71%; methoxyl, 7.93% (ash-free basis, 8.73%).

Desulphonations

All desulphonations were performed in the same manner. Fifteen grams of finely powdered lime was added to 100 grams of water in a 150-cc. iron crucible and the mixture well mixed. Fifteen grams of finely powdered calcium lignosulphonate was then added gradually with constant stirring. The crucible was sealed, thoroughly shaken, and then placed in an oil bath at the temperature and for the length of time of the experiment. At the end of the reaction time the crucible was removed from the oil bath and allowed to cool.

After cooling, the crucible was opened and the reaction mixture well mixed. The contents consisted of a mixture of calcium lignate (calcium salt of desulphonated lignin), calcium sulphate, calcium sulphite, calcium lignosulphonate in various degrees of desulphonation, excess calcium oxide and hydroxide, and smaller amounts of organic byproducts such as vanillin, etc. The relative amount of each component is dependent upon the conditions of the experiment. Hydrochloric acid was added in sufficient quantity to give an excess after neutralizing the excess lime and the calcium salts of the organic compounds. A large part of the crucible contents dissolved, and the desulphonated lignin was precipitated as a light yellow flocculent precipitate. The lignin precipitate and acid solution mixture was transferred to a beaker, and the precipitate allowed to settle. The solution was decanted from the lignin which was then stirred well with distilled water and the resulting mixture centrifuged. Decantation, stirring with distilled water, and centrifuging was repeated three times. The lignin was then transferred to a Buchner funnel, thoroughly washed with distilled water, and then placed in a cellophane bag and dialyzed for a period of six weeks. The dialyzed material was washed into a beaker, allowed to settle, decanted through a Buchner funnel, and washed with distilled water. The thoroughly washed precipitate was air dried at 80 deg. C.

The results of desulphonation experiments at five different temperatures keeping constant the concentration of lime and the calcium lignosulphonate-lime ratio is given in Table I.

Sulphur contents were determined by the catalytic oxidation method described by Pellerano *(6)*. Methoxyls were determined by the method of Peniston and Hibbert *(7)*. No correction was made for sulphur contained in the ash because the ash values were small and were very nearly uniform.

The desulphonation of calcium lignosulphonate by lime at atmospheric pressure was studied. However, the desulphonations and yields were so low, even at long reaction times, when compared with the pressure desulphonations that the data were not included in this study.

TABLE I

Time, hr.	Ash, %	Methoxyl, %	Sulphur, %	Desulphonation, %	Yield,* %
		(Oil Bath at 100-105 deg. C.)			
¼	0.38	10.71	3.85	42.6	33
½	0.62	10.63	1.94	71.1	40
1	0.41	11.20	1.79	73.3	37
2	0.27	11.11	1.61	76.0	38
4	0.11	10.36	1.39	79.3	44
		(Oil Bath at 125-130 deg. C.)			
¼	0.28	9.42	1.81	63.1	41
½	0.34	10.87	1.56	76.8	48
1	0.51	10.41	1.38	79.4	56
2	0.0	11.00	1.15	82.9	54
4	0.36	10.86	0.78	88.4	57
		(Oil Bath at 150-155 deg. C.)			
¼	0.62	11.16	1.58	76.5	49
½	0.10	11.28	1.34	80.0	56
1	0.44	11.87	1.11	83.5	54
2	0.20	11.80	0.84	87.5	62
4	0.0	11.03	0.29	95.7	59
		(Oil Bath at 175-180 deg. C.)			
¼	0.40	10.87	0.97	85.6	61
½	0.17	11.16	0.79	87.2	71
1	0.04	11.03	0.69	89.7	68
2	0.22	11.70	0.43	93.6	63
4	0.42	12.14	0.034	99.5	69
		(Oil Bath at 200-210 deg. C.)			
¼	0.66	11.06	0.81	87.9	61
½	0.31	12.10	0.64	90.5	66
1	0.70	12.88	0.37	94.5	73
2	0.04	11.92	0.0	100	71

* Yields are based on the weight of the original calcium lignosulphonate.

Conclusions

These data indicate that for a calcium lignosulphonate-lime ratio of 1:1 and a lime concentration of 10 to 15%, the complete cleavage of sulphur from calcium lignosulphonate takes place at temperatures between 175 and 200 deg. C. and reaction times of 2 to 4 hours.

At lower temperatures the low ash values and higher sulphur values indicate that the calcium lignosulphonate is evidently partially desulphonated to a degree which changes its solubility in dilute hydrochloric acid and thereby giving a partially sulphonated lignosulphonic acid. This observation is further substantiated by Howard *(5a)* who found that steam cooking under pressure of the calcium lignosulphonate with lime caused a diminution in the proportion of organic combined sulphur through formation of calcium sulphite and yielded a solid organic material of diminished solubility in aqueous acid solutions.

It is evident from the facts that the methoxyl values of the desulphonated lignins obtained at each temperature are approximately uniform; that the methoxyl contents increase with reaction temperatures; and that the structure of the desulphonated lignin is dependent upon the desulphonating temperature.

Lime desulphonation of calcium lignosulphonate results in much higher yields of desulphonated lignin than does the sodium hydroxide desulphonation *(1)*.

Atmospheric pressure desulphonations with lime result in little desulphonation and very low yields.

The properties of the desulphonated lignins obtained by lime treatment of calcium lignosulphonate will be studied.

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Measurement of the Stiffness in Bending of Single Fibers*

By C. O. Seborg[1] and F. A. Simmonds[2]

Abstract

An apparatus and technique using a highly sensitive quartz spiral for applying stress was developed for measuring the stiffness in bending of single fibers in liquid media or in air. The average stiffness values for southern pine summerwood fibers pulped by the sulphate and by the sulphite processes were approximately five times those for the springwood fibers when measured in water. The two types of fibers pulped by the sulphate process averaged about 1.4 times as stiff as the comparable sulphite pulp fibers.

Fiber stiffness is one of the properties affecting drainage and beating characteristics of pulps and also the formation, bulk, and finish of paper. It is defined herein as resistance to deformation.

This report, a second one dealing with fiber stiffness, describes a method for measuring the stiffness in bending of single pulp fibers. The previous publication *(1)* dealt with a test for determining the recovery of a wet pulp mat from compressive deformation which was assumed to be chiefly a manifestation of fiber stiffness. With these independent methods available it will be possible to test by a correlational study the validity of the assumption that fiber stiffness can be measured by the relatively simple recovery method.

Sulphate and sulphite pulps made from springwood and summerwood portions of southern pine were selected as representing the extremes of fiber stiffness aside from what variation may exist in different species.

Three-eighths inch thick disks of green southern pine logs were cut and examined by transmitted light and all sections of blue stained and compression wood were removed. The springwood and summerwood rings in the remaining portions were carefully separated and reduced to chips by hand cutting. A sulphate pulp and a sulphite pulp were prepared from both the springwood and summerwood chips.

The wood and pulps prepared from it were maintained above fiber saturation at all times prior to determining the stiffness of single fibers in water as the surrounding medium.

Apparatus and Procedure

The apparatus developed is shown schematically by Fig. 1. A single fiber is held by clamp D, which is connected through arm E to a device for moving the clamp in both the horizontal and vertical planes and rotating it about its long axis. Suspended in tube B is a calibrated quartz spiral spring with the high sensitivity of 5 cm. of elongation per mg. of load. The amount of extension of the spiral is measured with a cathetometer readable to 0.005 cm.

The glass-sided enclosing tank provides the means for making the determination in liquid media as well as air. The measurements reported in the present study were made in water maintained at a temperature of 22 ± 1 deg. C.

The procedure differs from the standard method of measuring the deflection for an applied load as used in the testing of engineering materials. Instead a fiber is supported as a cantilever and a bending stress is applied by placing the lower hooked end of the quartz spiral at a constant distance from the point of support and slowly lowering the fiber against the spring tension. The cathetometer is made to follow a reference point on the spiral and stopped at the instant the hook first begins to slip along the fiber. The elongation of the spiral in centimeters, converted to milligrams of force, is the test value. In the experiments reported here two readings were made at each of four positions resulting from three 90-degree rotations of the fiber about its long axis, making eight readings in all for each fiber.

In the cases of the sulphate springwood and summerwood pulps, three groups of 25 fibers each were tested, with two sets of four measurements for each fiber. An analysis of variance then indicated that, with occasional but identifiable exceptions, the sample size could be reduced to 25 fibers and also the duplicate measurements omitted for the four positions of each fiber. Consequently, only 25 fibers were tested for each type of sulphite fiber but duplicate determinations were made in order to verify the previous conclusion.

Discussion of Results

The single fibers selected as test samples were whole

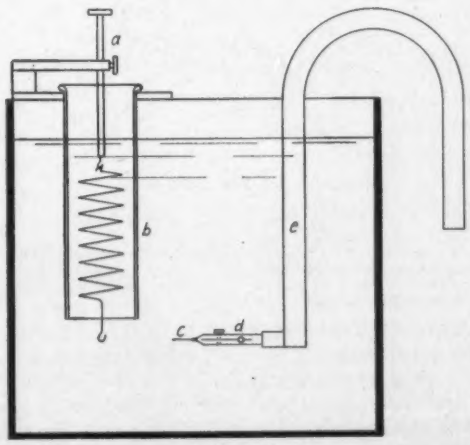

FIG. 1

Apparatus for Measuring Stiffness of Single Fibers in Water or in Air. a—Adjustable Support for Spiral. b—Glass Tube. c—Fiber. d—Clamp. e—Connection to Mechanical Stage.

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* Presented at the Fall Meeting of the Technical Association of the Pulp and Paper Industry, University of Michigan, Ann Arbor, Mich., Sept. 16-19, 1941.

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[2] Member TAPPI; Associate Chemist, Forest Products Laboratory,[3] Forest Service, U. S. Department of Agriculture.

[3] Maintained at Madison, Wis., in cooperation with the University of Wisconsin.

and undamaged, and were straightened, in so far as possible, prior to test. They were not, therefore, random samples with respect to the fibrous mass comprising the whole pulps. Since the immediate problem was to determine if the apparatus could be used to evaluate the very probable difference in the stiffness of springwood and summerwood fibers and also to disclose a suspected effect of the digestion processes, the fibers, as selected, were a reasonable source of material and, on this basis, the test pieces represented random samples.

In addition to the variation in inherent fiber stiffness it was observed that torsional rigidity, surface friction, and visible surface irregularities, such as fibril stubs, pits, and small bends, are factors which influence the test value.

The influence of torsional rigidity enters in the case of curved fibers when the bending stress is applied in a different plane than that of the curvature. In those instances where such curvatures affect the initial slip, there is an added influence similar in effect to those of surface irregularities. On the other hand, depending on definition, the purely torsional effect might be viewed as inseparable from inherent stiffness.

Any surface irregularity in which the hook can lodge will increase the load at initial slip and indicate too high a degree of stiffness. High surface friction will have the same effect. These consequent errors can be minimized by careful manipulation and by the exclusion of results obviously so affected.

Values for stiffness and recovery from compressive deformation and certain chemical properties of the springwood and summerwood fibers produced, respectively, by the sulphate and sulphite processes are summarized in Table I. The two types of fibers and the influence of the pulping processes are compared with respect to stiffness and recovery characteristics by means of ratios in Table II.

These results show the summerwood fibers of both the sulphate and sulphite pulps were approximately five times stiffer in water than the springwood fibers. An effect of pulping is indicated by the fact that the sulphate springwood fibers were about 20% stiffer than the sulphite springwood fibers and the sulphate summerwood about 50% stiffer than the sulphite summerwood. The influence of lignin content is one of the factors that must be studied, however, before generalizations can be made concerning the effect of pulping process on fiber stiffness.

TABLE I.—CERTAIN CHEMICAL AND PHYSICAL PROPERTIES OF SULPHATE AND SULPHITE PULP FIBERS OF SOUTHERN PINE SUMMERWOOD AND SPRINGWOOD

Fiber variety	Properties: Lignin, %	Alpha-cellulose, %	Total pentosans, %	Ash, %	Stiffness, mg.	Recovery from compressive deformation, %
Sulphate summerwood	7.7	77.8	8.7	0.3	1.095 ± 0.023	134.8
Sulphate springwood.	2.8	77.0	8.7	0.4	0.200 ± 0.005	47.3
Sulphite summerwood	0.5	84.8	5.9	0.8	0.722 ± 0.023	62.0
Sulphite springwood.	1.3	78.0	6.1	1.2	0.162 ± 0.006	30.5

An analysis of the variation of the materials tested revealed that under the experimental conditions as outlined and with materials similar in variation, whenever differences as large as 0.096 are observed between average stiffness values of summerwood sulphate and sulphite pulp fibers, such differences are due to a real difference in the inherent fiber stiffness and not to experimental error. For springwood sulphate and sulphite pulp fibers the corresponding difference is 0.024. It seems evident from the marked difference in cell wall thickness between softwood springwood and summerwood fibers, which is practically independent of the pulping process, and also from the present data, that the difference in the average stiffness values of these two types of fibers will always be significant. It would be unwarranted, of course, to generalize from these data with respect to the relative stiffness of sulphate and sulphite pulps because in such fiber aggregates the variable amounts of springwood, summerwood, crooked, and short fibers, and especially fines, would determine the values representing the average stiffness of the fibers.

TABLE II.—COMPARISON OF SPRINGWOOD AND SUMMERWOOD FIBERS OF SOUTHERN PINE SULPHATE AND SULPHITE PULPS WITH RESPECT TO STIFFNESS AND RECOVERY FROM COMPRESSIVE DEFORMATION

Property	Fibers compared in ratio	Ratio value
Stiffness	Sulphate springwood / Sulphate summerwood	5.2
Recovery	do.	2.8
Stiffness	Sulphite summerwood / Sulphite springwood	4.5
Recovery	do.	2.0
Stiffness	Sulphate summerwood / Sulphite summerwood	1.4
Recovery	do.	2.2
Stiffness	Sulphate springwood / Sulphite springwood	1.2
Recovery	do.	1.6

It has been explained that the object of the present investigation was the measurement of the stiffness of single fibers having widely different values of this property. The selection of samples to most readily achieve this excluded a range of fiber size distribution. The samples used in the determination of recovery from compressive deformation consisted, of course, of aggregates of fibers with possibly varying distributions of fiber sizes. This difference might tend to disturb a correlation of the two types of test values. Nevertheless, it is observed that the recovery values of the pulps (Table I) retain the same relative order as the stiffness values and encourages a further study of this relationship which is now in progress.

Data dealing with the influence of moisture content on the stiffness of fibers are now available, and it is expected to publish these later.

The sensitivity and precision of the apparatus for determining the stiffness in bending of single fibers are sufficient to measure extremely small differences.

The average stiffness of the southern pine summerwood fibers pulped by both the sulphate and sulphite processes was approximately five times that of the corresponding springwood fibers. The sulphate springwood and summerwood fibers were respectively 1.2 and 1.5 times stiffer than the sulphite springwood and summerwood fibers. An analysis of variance revealed these differences to be significant at the 1% level.

The relative order of recovery values of wet mats of these fibers was the same as that of the stiffness values. This, when considered in connection with previous data on recovery tests for sulphate and sulphite pulps from softwoods, shows the possibility of using the recovery test to indicate the relative stiffness of pulp fibers sufficiently well to warrant continuation of this course of study.

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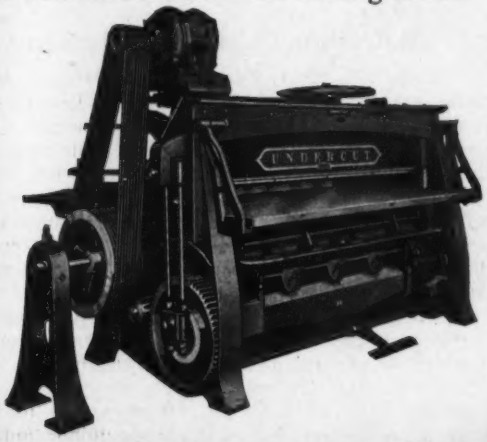

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Effective September 30, 1939, under Treasury Decision 49,970, all publications, exchanges and trade associations were denied access to import manifests at the New York Customs House. The Paper Trade Journal and other interested parties have vigorously protested this ruling, and as soon as the order of the Treasury Department is modified or rescinded, full publication of all manifests will be resumed in these columns. In the interim, the Paper Trade Journal is making every possible effort to gather all available information from manifests, at various outside sources.

NEW YORK IMPORTS

WEEK ENDING OCTOBER 18, 1941

SUMMARY

Newsprint .....1,327 rolls

NEWSPRINT

H. G. Craig Co., Inc., ———, Donnacona, 316 rolls.
International Paper Co., ———, Gatineau, 318 rolls.
H. G. Craig Co., Inc., ———, Donnacona, 368 rolls.
International Paper Co., ———, Gatineau, 325 rolls.

RAGS, BAGGINGS, ETC.

———, ———, Rio de Janiero, 853 bls. cotton linters.
Philadelphia National Bank, ———, Callao, 135 bls. cotton waste.
L. Weis & Co., ———, Callao, 92 bls. cotton waste.
Williamson Products Co., ———, Santos, 162 bls. cotton picker waste, 292 bls. cotton linters.
Kauders Steuber Co., ———, Santos, 727 bls. cotton linters.
West Texas Cottonoil Co., ———, Santos, 394 bls. cotton linters.
———, ———, Santos, 70 bls. cotton picker waste, 626 bls. cotton linters.
Continan Shipping Co., ———, Santos, 10 bls. cotton linters.
New England Waste Co., ———, Buenos Aires, 258 bls. cotton linters.

CASEIN

Tupman Thurlow Co., Inc., ———, Buenos Aires, 84 bags (ground lactic) 5,040 kilos.
C. W. Burckhalter, Buenos Aires, 417 bags.
Casein Co. of America, Inc., ———, Buenos Aires, 1,275 bags (ground), 400 bags (Rennet).
H. S. Cramer & Co., Inc., ———, Buenos Aires, 500 bags (unground lactic).
American Cyanamid & Chemical Corp., ———, Buenos Aires, 1,917 bags (ground).

GLUESTOCK

Darmstadt Scott & Courtney, ———, Buenos Aires, 58 bls.

Market More Stabilized

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., October 20, 1941—The market here is becoming more stabilized, especially the wrapping paper market, and things seem to be going along on an even keel. The excitement and panicky buying seem to have subsided. Reports from many sources indicate that seasonal activity is most encouraging and it is predicted that a most prosperous year will be rounded out.

The stevedores' strike which has been in progress in Philadelphia has delayed unloading of cargoes of kraft and like products from coastwise points. However, this market is now receiving kraft manufactured by one of the best known New England manufacturers and the acute shortage of important items is subsiding.

B. C. Pulp Co. Runs at Capacity

VANCOUVER, B. C., October 16, 1941 — Altered conditions brought about by events in Europe in the first half of 1940, meant capacity production for the two plants of the British Columbia Pulp and Paper Company, Ltd. Production in 1940 exceeded 100,000 tons of pulp and so far as can be foreseen capacity operation throughout 1941 is indicated. Prices appear to be stabilized at levels which permit the company to earn first mortgage interest with something to spare.

In recent years the British Columbia Pulp and Paper Company, Ltd., has materially strengthened its position by equipping each plant to produce high-grade rayon pulp or sulphite pulp in accordance with demand. At Woodfiber on Howe Sound the company manufactures easy bleaching sulphite pulp and at Port Alice on Vancouver Island bleached sulphite pulp is manufactured. A 3000 hp. hydro-electric plant at Woodfibre furnishes power and an additional 17,000 hp. is capable of development at this site. The company controls by lease 155,000 acres of timber lands.

The Port Alice plant was extended in 1937 at a cost of $1,159,081 to bring capacity of the two plants to between 300 and 350 tons daily.

Officers and directors of the company are: Lawrence Killam, president; George Kidd, vice-president; O. A. Jorgensen, treasurer; Ethel M. Dominy, secretary; W. H. Malkin, R. C. Buchanan, Cecil Killam, all of Vancouver, and I. W. Killam of Montreal.

Government Paper Bids

WASHINGTON, D. C., October 22, 1941—Government Printing Office has received the following bids for 400,000 sheets of 22 x 34 white gummed paper: Mudge Paper Company, $16.38 per M sheets; R. P. Andrews Paper Company, $17.00; Whitaker Paper Company, $15.29 and $14.31; Barton, Duer & Koch Paper Company, $15.60 and $14.60; Butler Company, $15.60; and Old Dominion Paper Company, $14.967.

For 100,000 pounds of 22½ x 28½ buff bristol board in 24 inch rolls: Mudge Paper Company, 5.59 cents; and Barton, Duer & Koch Paper Company, 6.75 cents.

For 120,000 pounds of 25 x 30 binder's board: Consolidated Paper Company, 4.5 cents less 2%; R. P. Andrews Paper Company, 4.14 cents; and Barton, Duer & Koch Paper Company, 4.225 cents.

For 51,000 pounds of 25% rag, 34 x 44 white bond paper: Virginia Paper Company, 13.5 cents and Old Dominion Paper Company, 13.489 cents.

For 4,875 pounds of 100% rag, 24 x 38 white bond paper: Virginia Paper Company, 27.5 cents; R. P. Andrews Paper Company, 28 cents; Mudge Paper Company, 27.8 cents; Old Dominion Paper Company, 27.49 cents; and Walker, Goulard Plehn Company, 27.7 cents.

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New York Paper and Pulp Market Review

Paper Production Now Estimated At Annual Rate of 17,200,000 Tons — Chemical Pulp Market In Strong Position — OPA Announces It May Soon Establish Maximum Prices On Cotton Rags.

Office of the PAPER TRADE JOURNAL,
Wednesday, October 22, 1941.

Although production and orders for practically all grades of paper and paper products are running at an unprecedented high level, somewhat more stability in the paper markets is indicated in reports received during the current week from many manufacturers' representatives, jobbers, and general paper merchants.

General business reports reflect the opinion that prices in many industrial materials have about reached their peak and some recession may be expected. This is applicable particularly to non-durable goods, but to some extent to many lines of non-durable goods. From many quarters, reports indicate that less heavy buying for the future may be expected. It is also reported that inventories in general are now sufficiently high to provide for all expected consumer demands, and that good business practice does not favor making continued heavy commitments and the further building up of inventories.

The fear of an actual paper shortage is apparently gradually subsiding, but demand continues very heavy in most lines, particularly in wrapping paper and in container board. Prices are well stabilized.

The index of general business activity declined to 126.5% for the week ended October 11, compared with 127.4% for the preceding week, and with 112.1% for the corresponding week last year. Paper board output was 3.7% lower.

Paper production for the week ended October 11 was estimated at 103.1%, compared with 86.2% for 1940, with 99.3% for 1939, with 83.0% for 1938, and with 74.8% for the corresponding week for 1937.

Paper board production for the week ended October 11 was 99.0%, compared with 79.% for 1940, with 83.0% for 1939, with 70.0% for 1938, and with 68.0% for the corresponding week for 1937.

Estimates of paper production indicate that the total production of paper and paper board, not including building paper, was 1,433,000 tons for August, which is at an annual rate of 17,200,000 tons. This is an all-time record. The largest increase was in paper board, which was 48.4% higher in August, 1941 than for the like month last year. The estimated required production of OPM for August was 1,293,000 tons, while orders aggregated 1,499,000 tons.

Chemical Pulp

The chemical pulp market is strong, with prices firmly maintained and unchanged. Imports of all grades of pulp for July, 1941, except groundwood, were 13.8% lower than for June; groundwood imports were 20.4% higher.

Rags

Mill buying of new cotton cuttings is reported more active now. Prices are maintained on all grades.

The Office of Price Administration announces that maximum prices will soon be established for all old rags, used as raw material in the paper and other industries.

Old Rope and Bagging

Steady demand from mill and the limited supply situation continues to maintain a strong position for old Manila rope. Prices are firm.

Trading in scrap bagging continues to readily absorb all supplies. Prices are firmly maintained.

Old Waste Paper

Demand continues heavy for many grades of waste paper. The directive price schedule of OPA is reported being generally followed in the trade. Prices are firmly maintained.

Twine

The twine market is reported active. Prices are firm. No important changes from representative quoted market prices have been reported at this date on any grade of soft or hard fiber twine.

Smythe Co. Honors Miss Shoemaker

PHILADELPHIA, Pa., October 20, 1941—With a testimonial dinner on Thursday last at the Penn Athletic Club, the J. L. N. Smythe Company paid a tribute to Miss A. C. Shoemaker, assistant treasurer of the company who, after thirty-seven years of service will retire from active business.

As a token of their appreciation, W. C. Haines, sales manager of the wrapping paper department, presented Miss Shoemaker with a Philco combination record player and radio.

Miss Shoemaker entered the employ of the Smythe Company in 1904, just four years after the late J. L. N. Smythe established his business at 23 South Fourth street, where the company remained until 1907 when it moved to 507 Ludlow street where it remained until 1912 when it located at 408 Vine street, and later in 1917 made 30 South Sixth street its headquarters until 1937 when it moved to 1600 Callowhill street, its present address. In 1938 the Smythe Company merged the Charles Beck Company into its fine paper department. The present officers of the company are T. H. B. Smythe, son of the founder of the company and a former president of the Philadelphia Paper Trade Association, who is president and treasurer; William C. Melcher, Jr., first vice-president, H. Elmore Platt, 2nd vice-president, and H. L. Raabe, assistant treasurer.

Paper Index Higher

WASHINGTON, D. C., October 22, 1941—Index of the value of paper manufacturers inventories in August was 114.2 compared with 112.9 in July and 107.1 in August of last year taking December 31, 1938, at 100 according to the monthly industry survey of the Department of Commerce.

The same survey shows that the August index of the value of paper manufacturers shipments was 182 compared with 173 in July and 129 in August of last year taking January 1939 at 100.

Your Calenders May Be Running All Right...But...

Don't Let The Finishing Room Become Your Production Bottleneck When You Can Speed Up With These Comparatively Low Cost Improvements To Your Present Equipment

Many a Norwood Calender that we built more than 20 years ago is still running all right and doing a good job . . . so it is not surprising if your calenders, too, are running all right.

But during the past ten years we have made a lot of improvements . . . additions and refinements . . . that speed up the operation of calendering and decrease the number of delays because of broke and other troubles. Most of these improvements can be added to your present calenders to bring them up to date and speed them up to present day needs. Technical bulletins covering these improvements are yours for the asking. Here are some suggestions:

Save Time and Money by Having Your Calenders Equipped with the New Power-Saving Drive. No. PM-37, Drives ..... ☐

Save Time and Money by Having the Ideal Pressure Device on Your Calenders. No. PM-38, Pressure Devices ..... ☐

Save Time and Money by Having Your Calenders Equipped with the New Adjustable Intermediate Roll Journal Boxes. No. PM-40, Important Features Included on Norwood Calenders ..... ☐

Save Time and Money by Having Rolls That Stand Up and Do the Job Right. No. PM-39, Norwood Calender Rolls ..... ☐

Speed Up Your Platers by Having Us Change Them From Belt to Motor Drive. Details on Request.... ☐

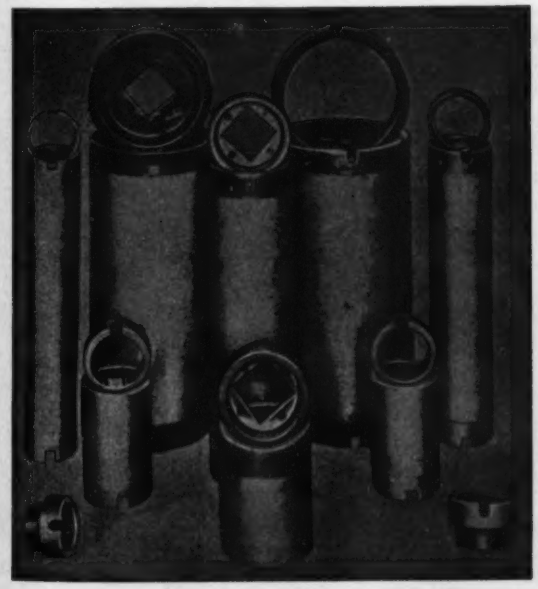
Don't Let the Finishing Room Become Your Bottleneck. Investigate These Modern Improvements Now. Just Check the Technical Bulletins You Would Like to Have, Attach to Your Card, and Mail.

Get a Good Start And a Good Finish With

NORWOOD

WATER FILTERS AND PAPER FINISHING MACHINERY

THE NORWOOD ENGINEERING CO., 17 No. Maple St., Florence, Mass.



ELIXMAN

CAPS

Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

Long draw protected slot caps of heavy gauge steel in all standard sizes.

Heavy duty caps with reenforced square hole. This patented feature of reenforcement gives added strength and durability.

CORES

Samples of caps or cores will be gladly submitted

ELIXMAN PAPER CORE COMPANY, INC.

CORINTH, N. Y.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, October 22, 1941.

BLANC FIXE—Quotations on blanc fixe are firm and continue unchanged at prevailing market levels. Demand reported steady for the week. The pulp is currently quoted at $40 per ton in barrels, at works; the powder is offered at $60 per ton, f.o.b., works.

BLEACHING POWDER—Prices on bleaching powder are firm. Market reported active for the week. Bleaching powder is currently quoted at $2 per 100 pounds, in drums, at works.

CASEIN—Quotations on casein are firm. Demand reported good for the week. Standard domestic casein, 20-30 mesh, is currently quoted at 28 cents per pound; 80-100 mesh, at 28½ cents per pound; all prices in bags, car lots. Standard Argentina casein is currently offered at 28 cents per pound. No quotations on French casein.

CAUSTIC SODA—Prices on caustic soda are reported firm. Demand reported good for the week. Solid caustic soda is currently quoted at $2.30 per 100 pounds, flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Quotations on china clay are firm and continue unchanged this week. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay at from $12 to $22 per ton, at mines. Imported clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Quotations on chlorine unchanged. Market under full priority control. Chlorine is currently quoted at $2 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—Quotations on most grades of rosin are higher for the week. "G" gum rosin is currently quoted at $2.48 per 100 pounds, in barrels, Savannah. "FF" wood rosin is currently quoted at $2.48 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is quoted at $2.98 per 100 pounds, f.o.b., works.

SALT CAKE—Prices on salt cake are firm. Demand active, with current quotations nominal. Domestic salt cake is currently quoted at $15 per ton in bulk; chrome salt cake at $16 per ton. All prices in car lots, f.o.b., shipping point. The quotation of $16 per ton on imported salt cake continues nominal.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market quotations. Demand reported active. Quotations on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch are firm and continue unchanged for the current week. Pearl is currently quoted at $3.10 per 100 pounds; powdered starch at $3.20 per 100 pounds; all prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Demand reported active. The commercial grades are currently quoted at $1.15 per 100 pounds; iron free at $1.85 per 100 pounds, in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and continue to conform to prevailing market quotations. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $18 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $15 to $21 per ton, at mills. No quotations on imported talc.

MARKET QUOTATIONS

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Delivered Zone A			
Northern, Extra Quality	$5.25	@	$6.00
Superstandard	4.87½	"	5.25
Northern Standard Wrapping	4.50	"	5.00
Standard Wrapping	4.50	"	—
Tissues—Per Ream—Carlots			
White No. 1	1.07½	"	—
White No. 1 M. G.	.97½	"	—
White No. 1½	.85	"	—
White No. 2	.85	"	—
Anti-Tarnish M. G.	.90	"	—
Colored	1.00	"	—
Kraft	.90	"	—
Manila	.80	"	—
Unbl. Toilet, 1 M.	4.14	"	—
Bleached Toilet	5.60	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	3.80	"	—
Bleached, Jr.	2.30	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	8.75	@	10.75
No. 1 Manila Wrapping, 35 lb.	5.50	"	5.75
No. 2 Manila Wrapping, 35 lb.	5.25	"	5.50
Boards, per ton—			
News	48.00	@	—
Chip	48.00	"	—
Sgl. Mla. Ll. Chip	60.00	"	—
White Pat. Coated	75.00	"	—
Kraft Liners	60.00	"	—
Binders Boards	80.00	"	—

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—
White, Assorted Items,
Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$40.25@$47.25	$41.40@$48.50
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	32.20 " 37.75
75% Rag	24.75 " 29.00	25.90 " 30.50
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—
White, Assorted Items.
Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$10.55@$12.75	$11.70@$14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.50
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—
White, Cased Paper.

Delivered in Zone 1:

No. 1 Glossy Coated	$13.05@$14.75
No. 2 Glossy Coated	11.80 " 13.50
No. 3 Glossy Coated	11.00 " 12.50
No. 4 Glossy Coated	10.60 " 12.00
No. 1 Antique (watermarked)	10.25 " 11.75
No. 2 Offset	9.60 " 11.00
A Grade E. F.	9.35 " 10.75
A Grade S. & S. C.	9.60 " 11.00
B Grade E. F.	8.85 " 10.25
B Grade S. & S. C.	9.10 " 10.50
C Grade E. F.	8.50 " 9.75
C Grade S. & S. C.	8.75 " 10.00
D Grade E. F.	8.25 " 9.50
D Grade S. & S. C.	8.50 " 9.75

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—	
Moist	No price
Dry	No price

(Delivered)

No. 1 Domestic and Canadian	40.00	@	42.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	3.62½	@	4.75
Prime Qualities—			
Easy-Bleaching Sulphite	3.17½	"	4.25
Strong Unbleached Sulphite	3.17½	"	4.25
News Grade, delivered			
Unbleached Sulphite	63.75	"	67.75

(On Dock, Atlantic Ports)

Kraft Bleached	4.12½	"	—
Kraft Light & Strong	No price		
Kraft No. 1	3.60	"	4.75

(F. o. b. Pulp Mill)

Kraft Domestic and Canadian	3.00	"	3.50

(Delivered)

Soda Bleached	3.30	"	—

Add 60 cents per short ton, freight charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	8.00	@	8.25
Silesias No. 1	4.50	"	4.75
New Unbleached	8.00	"	8.25
Blue Overall	5.75	"	6.00
Fancy	3.00	"	3.25
Washables	2.50	"	2.75
Mixed Khaki Cuttings	2.50	"	2.75
O. D. Khaki Cutings	3.00	"	3.15

Old Rags

White, No. 1—			
Repacked	3.75	"	4.00
Miscellaneous	3.25	"	3.50
White, No. 2—			
Repacked	2.50	"	2.75
Miscellaneous	2.00	"	2.25
Third and Blues—			
Repacked	1.25	"	1.35
Miscellaneous	1.10	"	1.25
Roofing Rags—			
No. 1	1.50	"	1.60
No. 2	1.35	"	1.50
No. 3 (bagging)	.95	"	1.00
No. 4	.90	"	.95
No. 5A	.90	"	.95

Foreign Rags

All prices nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—

J. Andersen & Co.

Selling Agents

21 East 40th Street

New York

CHEMICAL & MECHANICAL PULP

Kraft Pulp

BERGVIK OCH ALA NYA AKTIEBOLAG
Söderhamn, Sweden
KALIX TRÄINDUSTRI AKTIEBOLAG
Vanaffärden, Sweden
MUNKSUNDS AKTIEBOLAG
Munksund, Sweden
NENSJÖ CELLULOSA A.-B.
Sprängsvikan, Sweden

Unbleached Sulphite

AKTIESELSKABET GREAKER CELLULOSEFABRIK
Greaker, Norway
BERGVIK OCH ALA NYA AKTIEBOLAG
Söderhamn, Sweden
CELLULOSEFABRIKS A.-G.
Bratislava, Czecho-Slovakei
SVANÖ AKTIEBOLAG
Svanö, Sweden

Bleached Sulphite

KELLNER-PARTINGTON PAPER PULP CO., LTD.
Sarpsborg, Norway
Edsvalla, Sweden
Hallein & Villach, Austria

TO WASTEPAPER DEALERS

Your active participation in the nation-wide campaign to conserve all forms of wastepaper and waste materials is urged in behalf of the nation's defense program.

New Sources of Wastepaper

. . . in homes, offices and stores are being tapped by the national advertising and publicity drive sponsored by the Wastepaper Consuming Industries.

Dealer Participation

Thousands of telephone calls daily from an awakened public are being generated by this campaign. Register your desire to follow through on these leads in your city. The campaign costs you nothing. Notify the Wastepaper Conservation Committee, Boatmen's Bank Building, St. Louis, Mo., that you would like to be listed among the cooperating dealers.

WASTEPAPER CONSUMING INDUSTRIES OF AMERICA

ROBERT L. NELSON CO., INC.

ANNOUNCE

The Establishment of Their

NEW

CONVERTING PLANT

for

SHEETING and RE-WINDING

at

323 East 30th Street

New York, N. Y.

Large Stocks of Fine and Coarse Papers On Hand

LExington 2-0863

JORDAN FILLINGS
BEATER BARS
BED PLATES

The Noble & Wood Machine Co.
HOOSICK FALLS, N. Y.

COVEL-HANCHETT KNIFE GRINDING SERVICE
Advanced Constructions, Developed By The Pioneers in the Industry
COVEL-HANCHETT CO., Big Rapids, Mich., U. S. A.

CABBLE

WIRES

WM. CABBLE EXC. WIRE MFG. CO.
80-88 AINSLIE ST., B'KLYN, N. Y.

SERVING THE INDUSTRY SINCE 1848

No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	"	4.75
No. 2 White Cotton.	3.25	"	3.75
No. 3 White Cotton.	2.50	"	3.00
No. 4 White Cotton.	1.90	"	2.20
Extra Light Prints..	2.00	"	2.40
Ord. Light Prints...	1.75	"	2.15
Med. Light Prints...	1.55	"	1.95
Dutch Blue Cottons.	2.25	"	2.50
French Blue Linens.	3.00	"	—
Checks and Blues...	2.00	"	—
Linsey Garments....	1.90	"	2.00
Dark Cottons.....	1.50	"	1.60
Old Shopperies.....	1.30	"	1.45
New Shopperies.....	1.45	"	1.50
French Blues.....	2.25	"	2.50

Old Rope and Bagging
(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.50	@	4.75
Wool Tares, light....	4.25	"	4.50
Wool Tares heavy..	4.50	"	4.75
Bright Bagging.....	4.25	"	4.50
Manila Rope			
Foreign	6.00-	"	6.25
Domestic	6.00	"	6.25
Jute Threads.....	4.00	"	4.25
Sisal Strings.....	2.75	"	3.00
Mixed Strings.....	1.10	"	1.20

Old Waste Papers
(F. o. b. New York)

Shavings—			
White Envelope Cuttings	—	@	—
Ordinary Hard White No. 1....*3.00		"	—
Soft White No. 1..*2.15		"	—
Soft White Extra..	—	"	—
Flat Stock—			
Stitchless	—	"	—
Overissue Mag....*1.67½		"	—
Solid Flat Book...*1.57½		"	—
Crumbled No. 1...	—	"	—
Ledger White Stock..*2.12½		"	—
Ledger Stock Colored*1.92½		"	—
Manila—			
New Env. Cut....*2.70		"	—
New Cuttings.....	—	"	—
Old Kraft Machine Compressed bales..*1.35		"	—
News—			
No. 1 White News *1.65		"	—
Strictly Overissue. *.85		"	—
Strictly Folded.... *.75		"	—
Corrugated ..... *.72½		"	—
No. 1 Mixed Paper.. *.65		"	—

* OPA Maximum Prices in Effect October 1.

Twines
(F. o. b. Mill)
(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp.....	.21	"	—
Fine Polished—			
Fine India.....	.26	"	—
Unpolished—			
Box	.17¼	"	—
Paper Makers.....	.17	"	—
Tube Rope.....	.19	"	—
Wall Paper.....	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope....	.19	"	—
Cotton	.25	"	—
(Hard Fiber)			
Medium Java.....	.18	"	—
Mex. Sisal.....	.16	"	—
Manila	.26	"	—

PHILADELPHIA

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White No. 1.	.07¼ @		.07½
New White No. 2.	.04½	"	.05
Light Silesias.....	.04½	"	.04¾
Silesias, No. 1....	.04	"	.04¼
Black Silesias, soft	.03¾	"	.04
New Unbleached..	.07¼	"	.07½
Washable Prints...	.03¾	"	.03½
Washable No. 1..	.02	"	.02¼
Blue Overall.....	.04½	"	.05½
Cottons—According to grades—			
Washable shredding	—	"	.01¾
Fancy Percales....	.03¼	"	.03½
New Black Soft...	.02¾	"	.03
New Dark Seconds	1.75	"	2.00
Khaki Cuttings—			
No. 1 O. D.....	.03	"	.03¼
No. 2 Mixed.....	.02¼	"	.02½
Corduroy	.01¾	"	.02¼
New Canvas.....	.04¾	"	.05¼
New Black Mixed.	—	"	.02½

Domestic Rags (Old)

White No. 1—			
Repacked	3.25	@	3.75
Miscellaneous	3.00	"	3.25
Thirds and Blues—			
Miscellaneous	2.00	"	2.25
Repacked	2.25	"	2.50
Black Stockings (Export)	Nominal		
Roofing Stock—			
Foreign No. 1....	Nominal		
Domestic No. 1...	1.95	"	2.00
Domestic No. 2...	1.80	"	1.85
Roofing Bagging..	1.70	"	1.75

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	3.50	@	4.25
Domestic	3.75	"	4.25
Manila Rope.....	5.00	"	5.50
Sisal Rope.....	3.75	"	—
Mixed Rope.....	.75	"	1.00
Scrap—			
No. 1.....	3.75	"	4.00
No. 2.....	1.75	"	1.80
Wool Tares, heavy...	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers
(F. o. b. Phila.)

Shavings—			
Hard White Envelope Cuttings....*3.00		@	—
No. 1 Hard White Shavings	2.50	"	—
No. 1 Soft White..*2.15		"	—
White Blank News*1.65		"	—
No. 1 Mixed Shavings	—	"	—
Solid Ledger Stock..	—	"	—
No. 1 White Ledger..*2.12½		"	—
No. 1 Mixed or Colored Ledger.....*1.92½		"	—
No. 1 Books, heavy..*1.57½		"	—
Overissue Magazine..*1.67½		"	—
New Manila Envelope Cuttings *2.70		"	—
Container Manila....	—	"	—
New Kraft Cuttings..*2.60		"	—
Kraft Paper (Old)...*1.50		"	—
No. 1 Mixed Paper.. *.65		"	—
Super-mixed Paper.. *.70		"	—
Box Board Cuttings. *.72½		"	—
Corrugated Containers (old)..... *.82½		"	—
New Corrugated Cuttings ..... *.90		"	—
Overissue News.... *.85		"	—
No. 1 Baled News.. *.75		"	—

* OPA Maximum Prices in effect October 1.

BOSTON

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White..*3.00		@	—
No. 1 Soft White..*2.15		"	—
No. 2 Mixed.....	—	"	—
Solid Ledger Books.	—	"	—
Overissue Ledger Stock	—	"	—
White Ledger Stocks*2.12½		"	—
Mixed Ledgers *1.92½		"	—
No. 1 Heavy Books..*1.57½		"	—
No. 1 Books, Light..	—	"	—
Crumpled Stitchless Book Stock.....	—	"	—
Manila Env. Cuttings	3.00	"	3.25
Manila Envelope Cuttings, extra quality*2.70		"	—
White Blank News..*1.65		"	—
No. 1 Kraft.....	—	"	—
Extra No. 1 Kraft...	—	"	—
Mixed Papers.....	*.65	"	—
Print Manila	—	"	—
Container Manila....	—	"	—
Old Newspapers.....	—	"	—
Paper Wool Strings.	—	"	—
Overissue News.....	*.85	"	—
Box Board Chips....	—	"	—
Corrugated boxes....	*.72½	"	—
Kraft corrugated boxes	*.90	"	—
New Kraft Corrugated Cuttings....*2.45		"	—
Screening Wrappers.	—	"	—

* OPA Maximum Prices in Effect October 1.

Bagging
(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	5.00	@	—
Sisal Rope.....	3.50	"	4.00
Mixed Rope.....	1.00	"	1.25
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Soft Jute Rope.....	5.00	"	5.50
Manila Rope—			
Foreign .....(nominal)			
Domestic	6.00	"	6.25
Jute Carpet Threads.	3.00	"	3.25
Bleachery Burlap....	7.50	"	8.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	4.50	"	4.75
Scrap Sisal.....	3.25	"	3.50
Scrap Sisal for Shredding	3.75	"	4.00
Wool Tares—			
Foreign	(nominal)		
Domestic	5.00	"	5.50
Aust. Wool Pouches.	4.75	"	5.00
New Burlap Cuttings	5.50	"	5.75
Heavy baling bagging	4.25	"	4.50
Paper Mill Bagging..	4.00	"	4.25
No. 2 Bagging.....	.50	"	.60

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints.	.04½ @		.04¾
Fancy Percales....	.04¼	"	.05
New White No. 1.	.07¾	"	.08
New Light Flannelettes	.06	"	.06¼
Canton Flannel, Bleached	.08¼	"	.08½
Underwear Cutters, Bleached	.08¼	"	.08½
Silesias No. 1.....	.04½	"	.05
New Black Silesias..	.04½	"	.04½
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached.....	.08¼	"	.08½
Blue Cheviots.....	.04¾	"	.05
Fancy	.01¾	"	.02
Washable	.01¾	"	—

Waste Paper
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings...	—	@	—
No. 1 Hard White*3.00		"	—
No. 1 Soft White..*2.15		"	—
No. 1 White Ledger*2.12½		"	—
Solid Books *1.57½		"	—
Cottons—According to Grades			
Blue Overalls.....	.06	"	.06¼
New Black, Soft..	.03	"	.03¼
Khaki Cuttings.....	.02¼	"	.02½
O. D. Khaki.....	.02½	"	.03¼
Corduroy	.02	"	.02¼
New Canvas.....	.05½	"	—
B. V. D. Cuttings...	.07¾	"	.08

Domestic Rags (Old)
(F. o. b. Boston)

White No. 1—			
Repacked	4.00	@	—
Miscellaneous	3.00	"	—
White No. 2—			
Miscellaneous	2.50	"	3.00
Twos and Blues.....	1.75	"	2.00
Old Blue Overalls...	2.25	"	2.50
Thirds and Blues....	1.75	"	—
Miscellaneous	1.25	"	1.50
Black Stockings.....	3.50	"	4.00
Roofing Stock—			
No. 1.....	1.80	"	—
No. 2.....	1.60	"	—
No. 3.....	1.50	"	—

Foreign Rags
(F. o. b. Boston)

Canvas .....(nominal)	
Dark Cottons.....(nominal)	
Dutch Blues.....(nominal)	
New Checks and Blues(nominal)	
Old Fustians.....(nominal)	
Old Linsey Garments..(nominal)	
New Silesias.....(nominal)	

CHICAGO

White Blank News.*1.65		"	—
Krafts *1.50		@	—
New Kraft Cuts....*2.60		"	—
Overissue News.... *.85		"	—
Old Newspapers—			
No. 1 Folded News *.70		"	—
No. 1 Mixed Paper *.65		"	—

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